

TECHNOLOGY DEPARTMENT

First Copy

April

PUB 1928 LIBRA

MAR 20 1928

DETROIT

Construction Methods

McGraw-Hill Publishing Company, Inc., New York, N. Y.

Salmon Island Locks
on Ohio River.

A MONTHLY PICTORIAL OF FIELD PRACTICE AND EQUIPMENT
General Construction • Highways • Buildings • Engineering • Industrial



INGERSOLL-RAND BRANCH OFFICES:

Atlanta
Birmingham
Boston
Buffalo
Butte
Chicago
Cleveland
Dallas
Detroit
Denver
Duluth
El Paso
Hartford
Joplin
Knoxville
Los Angeles
Newark
New York
New Orleans
Philadelphia
Pittsburgh
Pottsville
San Francisco
Salt Lake City
Scranton
Seattle
St. Louis
St. Paul
Washington



Typical street repair work—modern style. Ingersoll-Rand Portable Compressors and Paving Breakers are the machines in use.

A Job for the Paving Breaker

I-R Paving Breakers are the hardest-hitting, deepest-cutting tool of all. Put them on the job, and concrete, asphalt, and other forms of street covering won't offer much resistance.

Public utilities, city street departments, and engineering corporations use portable compressor outfits when they want to do a job and do it thoroughly. I-R Portables are built in six sizes, with varying capacities, and there are also two distinct types of Paving Breakers. Every unit, large or small, carries Ingersoll-Rand backing and service.

Ask for literature or an actual working demonstration.

INGERSOLL-RAND COMPANY

11 Broadway

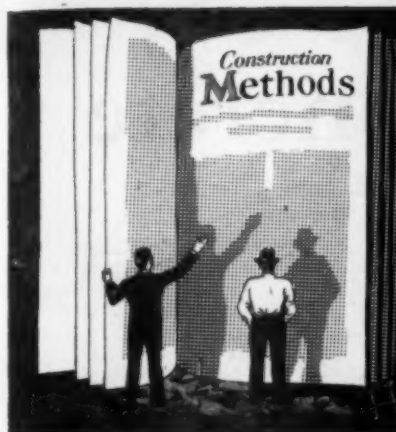
New York City

Offices in principal cities all over the world
For Canada refer—Canadian Ingersoll-Rand Company, Ltd.,
10 Phillips Square, Montreal, Que.

Ingersoll-Rand 156-PC

Construction Methods, April, 1928, Vol. 10, No. 4. Published monthly. McGraw-Hill Publishing Company, Inc., Tenth Ave. at Thirty-sixth St., New York, N. Y. Two years for \$1; per copy, 5 cents. Entered as second-class matter, October, 1926 issue. Vol. 8, No. 10, at the Post Office at New York, N. Y., under the Act of March 3, 1879. Printed in U. S. A.

April, 1928—CONSTRUCTION METHODS



What's Doing This Month



Looking it over with the Editor

“DEADMAN ISLAND”—a name fashioned for the pen of a Robert Louis Stevenson, bringing back the vivid picture of Long John Silver with his band of cut-throats digging deep for buried



“pieces of eight,” to the refrain of “Yo-ho-ho and a bottle of rum.” There has been a lot of digging done at Deadman Island, but it hasn’t been for buried treasure—it’s all been handled by big floating dredges to provide foundations for some concrete locks that the U. G. I. Contracting Co. is building for the Government in the Ohio River, a few miles from Pittsburgh. Nevertheless, there has been adventure, and plenty of it, in this job—the thrill of fighting the river when it goes on a rampage and floods the big cofferdam within which Resident Superintendent George S. Lamphere and his construction crew are carrying on. There’s a picture story on the Deadman Island work beginning on p. 6.

“A FOOL THERE WAS,” sang Kipling, and possibly if he had told his story against a construction background he might have immortalized some operator of a crawler tractor instead of the victim of the original Vampire. Anyway, tractor operators do some foolish things with the machines they pilot. Of course, this doesn’t apply to the field men who have demonstrated their intelligence by subscribing to “Construction Methods,” but for the other fellows “Don’ts for Tractor Operators,” beginning on p. 28, carries a number of practical suggestions that should make obsolete the report “Laid up for repairs.” You can’t blame a tractor for quitting when its ignition line is short-circuited by a tobacco tin, when its magneto is taken apart and put together again with a few parts left over, or when its bearings receive a mud bath instead of a shot of lubricant. In the picture story this month there are other practical hints on how to keep the tractor running. Possibly you can suggest additional “Don’ts”—in picture form, of course.

Are You a Worried “Super”? Here’s Instant Relief!

“Good thing,” writes a construction superintendent from Kentucky, “that you sent me those subscription blanks, as two of my foremen have been worrying me for my copy of ‘Construction Methods’ every time it comes in. Now I have made them subscribe for themselves. Yours for better business—.”

[We guarantee instant relief for other superintendents similarly afflicted if they’ll let our Circulation Manager know of their malady. With the high purpose of curing this kind of worry and making the workaday world of construction a brighter, happier place in which to live, he will send the necessary blank forms to other sufferers, be they superintendents or company executives. EDITOR]

WATER WORKS subjects will be emphasized in the June number, appearing at the time of the annual convention of the American Water Works Association.

PERSONALITIES—School has its three R’s and construction its three M’s: Methods, Machinery, and Men. Up to date we have been putting into the pages of *Construction Methods* a good deal of information about Methods and Machinery. This month there’s something new in the form of a page about the Men of the construction industry. It runs under the head “Present and Accounted For—” and its purpose is described in the subhead “A Page of Personalities from the Construction Field.” It’s all about construction men who are doing something interesting. Maybe, among your friends, there’s a candidate for this page. If so, the Editor would like to hear about him.

A CONTRACTOR who relied on a worn-out crane to feed the central mixing plant on a rush job was forced to see his plant stand idle for two weeks when the veteran machine suffered a stroke of complete paralysis. Portable mixers kept the job going until a new crane could be shipped. It is not the machines, but the delays, that constitute the heaviest expense.

HIGH-HATTING OPPORTUNITY—They say that a New York man won a bet once by standing at the corner of Wall Street and Broadway with a tray full of real twenty-dollar gold pieces which he offered for sale at a dollar apiece. *There were no takers!* You construction men, too, are high-hatting OPPORTUNITY by letting pictures of your jobs, showing interesting, novel, practical applications of methods or equipment, gather dust in your files instead of mailing them to the Editor of *Construction Methods* (Tenth Ave. at 36th St., New York)



for the Monthly Photographic Contest.

There are three prizes of \$25, \$15 and \$10 every month for the best construction photos. New contest conditions make it unnecessary for you actually to take the pictures yourself. It’s O.K. to submit photos for the contest provided you’re regularly employed on the job illustrated. The prize plums for the May contest are now ready to be picked. Read the contest conditions on p. 23 and then—

ENTER THOSE PHOTOS OF YOUR WORK TODAY

COMING—Among the picture stories scheduled for early publication in “Construction Methods” are: Reconstructing High Bridge over Harlem River, New York; The Conowingo Dam; Roofing Methods and Materials for Industrial Buildings.

High-Early-Strength Concrete Adapted to All Kinds of Jobs

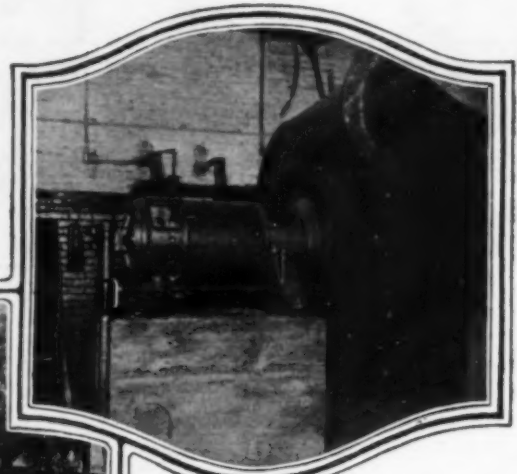
Wherever Early Use, Extra Strong Concrete, Permanently Better Concrete or Quick Removal of Forms is Desired, *High-Early-Strength Universal Concrete* fills the need.



The grandstand at Hibbing, Minn., required extensive form work. By using *High-Early-Strength Universal Concrete* the contractor was able to strip forms quickly and re-use them more often.



With the announced opening of a new highway five days away, this intersection at Le Mars, Iowa, was still to be paved. The contractor used *High-Early-Strength Universal Concrete* and the highway was opened as scheduled.



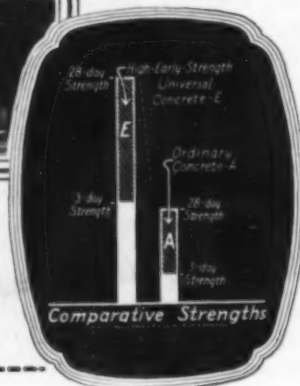
On Wednesday this concrete foundation at Braddock, Pa., was completed. On Friday the machinery was set in place. On Saturday foundation and machinery were ready for service. *High-Early-Strength Universal Concrete* was used.



Rain delayed the start of the driveway of The Sebald (Ohio) Oil Co. filling station. *High-Early-Strength Universal Concrete* enabled the owner to open the station on the advertised date.



Government specifications called for March occupancy of the River Forest, Ill., postoffice. The contractor used *High-Early-Strength Universal Concrete* for the foundation, met the required completion date and avoided penalties.



High-Early-Strength Universal Concrete is not only a ready answer to the call for speed but an assurance of permanently better and stronger concrete. In addition to a higher *early* strength, this concrete has a higher *ultimate* strength, as shown by the diagram. Made as workable as desired, it is used on *all types* of jobs.

High-Early-Strength Universal Concrete is made according to approved methods with the *usual* labor, *usual* materials, *usual* equipment and *usual* Universal cement. For full details send in the accompanying coupon.

UNIVERSAL PORTLAND CEMENT CO.

208 South La Salle Street, Chicago

Without obligation, please send me detailed information on methods of securing strong concrete in 3 days with the *usual* equipment, *usual* materials, *usual* labor and *usual* Universal cement.

Name

Address

CM 4-28

Universal Portland Cement Co.

Chicago Pittsburgh Minneapolis Duluth Cleveland Columbus New York

Concrete for Permanence

Construction Methods

McGraw-Hill
Publishing Company, Inc.
JAMES H. MCGRAW, President
E. J. MEHREN, Vice-President

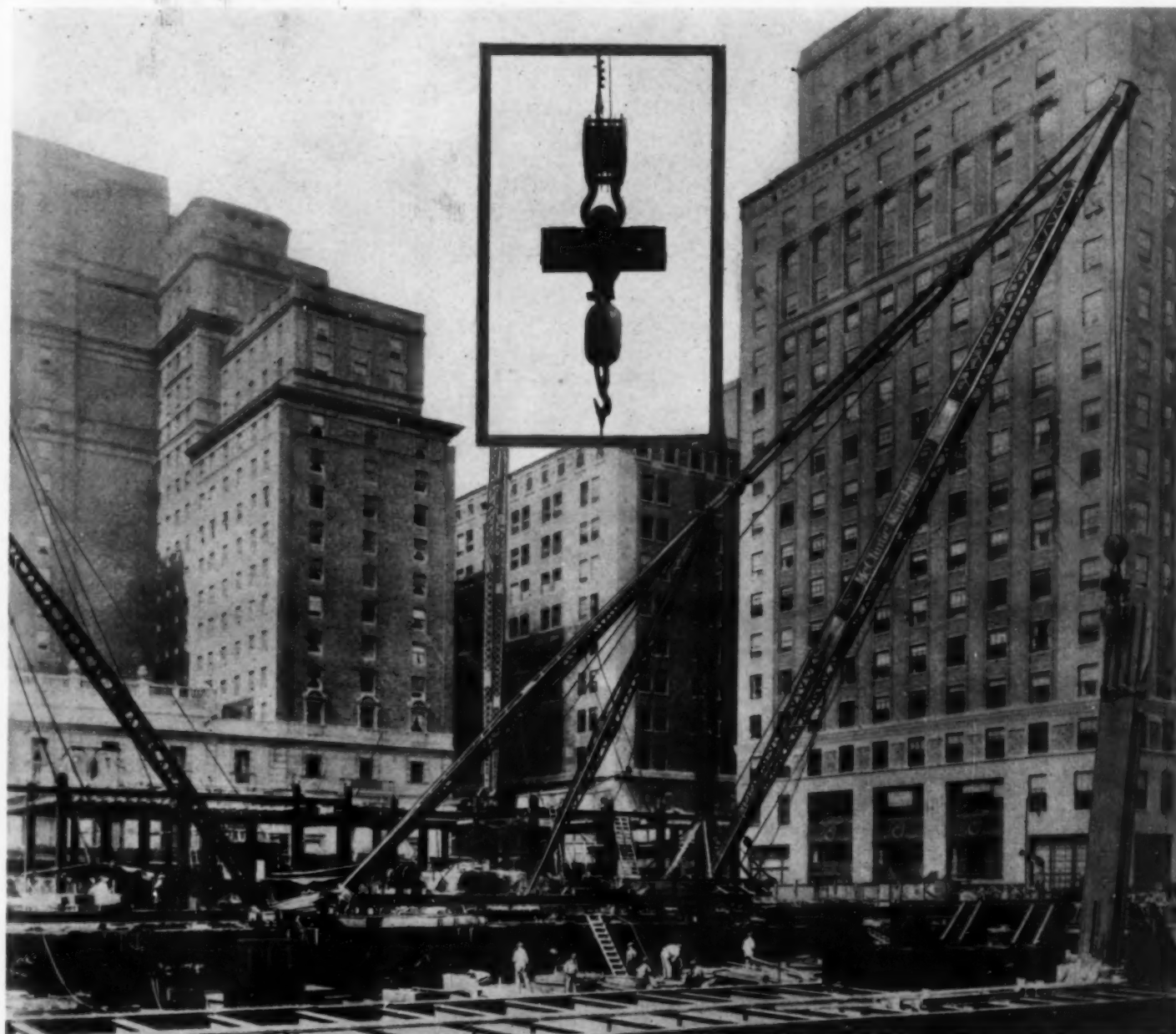
A monthly pictorial of field practice and equipment illustrating successful construction, maintenance and material-handling methods for general construction, highways, buildings, industrial plants and public works and utilities

WILLARD CHEVALIER,
General Manager
ROBERT K. TOMLIN,
Acting Editor

VOLUME 10

NEW YORK, APRIL, 1928

NUMBER 4



Big Derrick Sets 54-Ton Columns

ONE of the largest derricks ever built was used on the steel for the New York Central building in New York. It is a stiff-leg derrick, with 50-ft. mast and 100-ft. boom, and has a capacity of 60 tons at 98-ft. ra-

dius. Total weight of the rig is 25 tons.

The derrick is owned by McClintic-Marshall Company of New York. On the New York Central job, M. L. Carpenter, superintendent, reported that he handled 54-ton columns at 88-ft. radius

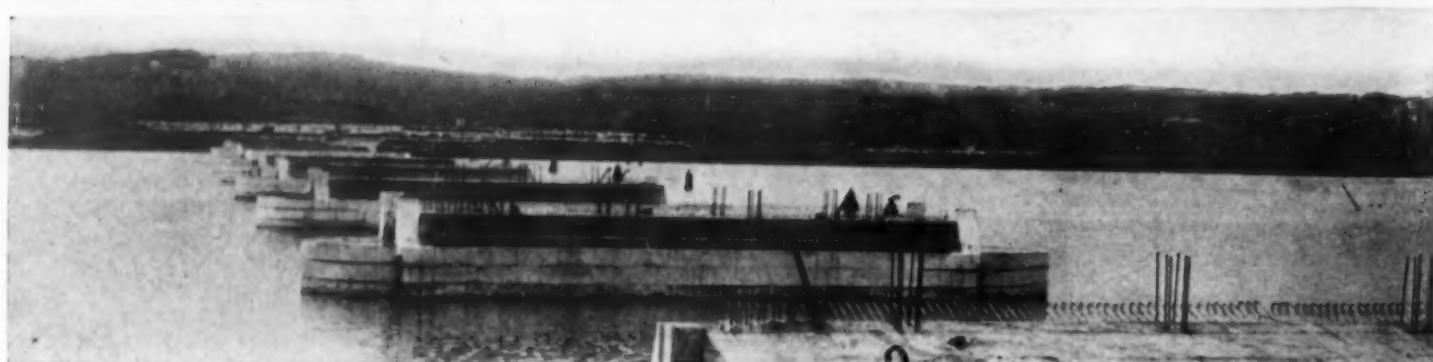
of the boom without experiencing any trouble. The derrick, powered with 100-hp. General Electric motor, was made by the American Hoist & Derrick Company, which also built the hoist used with it.



This Month's At Home

OPEN TO TRAFFIC! Passenger train makes first trip Feb. 26 through Moffat Tunnel under Rocky Mountains in Colorado, following completion of construction contract for 6.1-mile route by Hitchcock & Tinkler, Inc.

© Wide World



© International

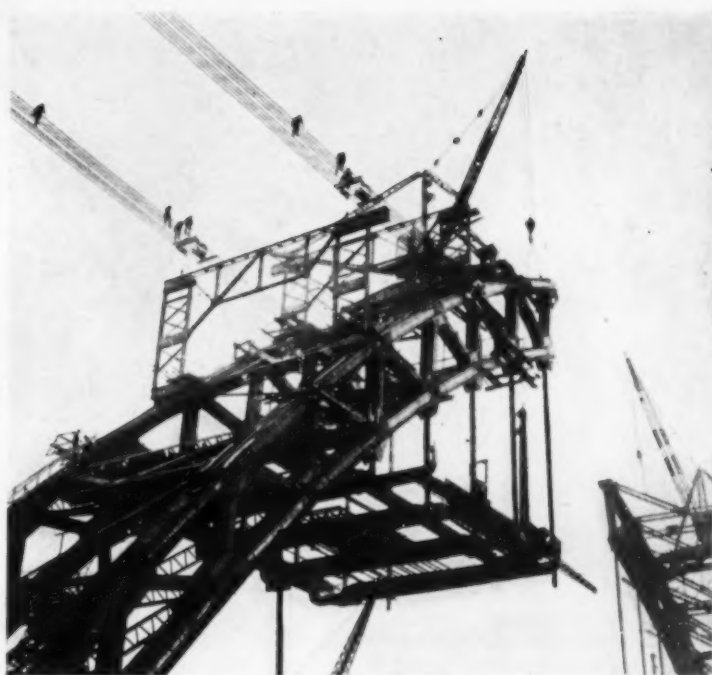
READY FOR THE SUPERSTRUCTURE of the Arlington Memorial Bridge over the Potomac River at Washington, D. C. The concrete piers have been completed by the H. P. Converse Co. of Boston, contractor for the substructure.

TRACK DEPRESSION work for the new twin viaduct at the Union Station, Atlanta, Ga., a Brooks-Callaway Company job.

"News Reel" and Abroad

BERLIN BUILDS SUBWAY by open cut method. Here is the concreting plant that German construction men are using on a section of the Tempelhof route.

© Underwood & Underwood



© Wide World

BRIDGING THE TYNE (above). How English constructors are handling the erection of the big steel span that will link Newcastle and Gateshead.



© International

PARIS FLOODS THREATEN. French constructors draft construction equipment and materials into emergency service to stem rising waters of the River Seine.



© Wide World

LONDON SUBWAY WITHOUT PASSENGERS! Initial trip, Feb. 8, of automatically controlled electric train in new mail-carrying tube from Paddington to Whitechapel.



Contractor Fights Floods in Building

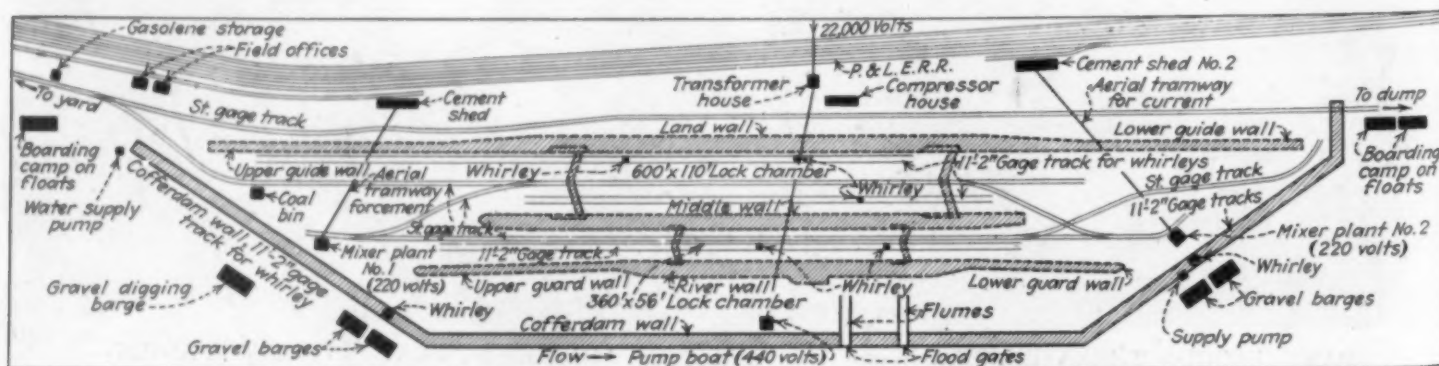
IN CONSTRUCTING a pair of concrete locks for a dam (to be built under a later contract) in the Ohio River at Deadman Island near Sewickley, Pa., the U. G. I. Contracting Co., of Philadelphia, is handling a \$2,000,000 job involving all of the problems inherent in heavy construction of this type, in addition to the hazard of having the entire work flooded when the river goes on a rampage.

The contract, as shown in the sketch herewith, includes a land wall (1,936 ft. long), middle wall and river wall, all of concrete, forming two lock chambers 600x110 ft. and 365x56 ft. respectively, for large and small boats. For the contractor, G. W. Maxon, resident engineer in charge, started work by constructing a cofferdam wall of the timber-box type 20 ft. wide, filled in with sand and gravel dug from the river bed. Before the 13-acre inclosure, 2,000 ft. long by 300 ft. wide, was unwatered, floating dredges made



the cuts for the middle and outer lock walls. The excavated material was used either for cofferdam construction or deposited at points suitable for reclaiming later as sand and gravel for concrete aggregate. For the land wall, at the base of a steep hill carrying the main line tracks of the Pittsburgh & Lake Erie Railroad, the excavation was carried on within a sheetpile shored trench.

After the excavation had progressed, the cofferdam wall was closed, and the area within unwatered by a pump boat equipped with five 12-in. Morris centrifugal units each operated by a 75-hp. electric motor and each having a capacity of 5,000 gal. per minute. Timber cribbing was placed to carry the pump boat hull as the water level in the cofferdam was lowered. With one or more of the pumping units in operation, this equipment keeps the inclosure dry and also is ready, at all times, for the emergency work of unwatering the construction area when





CONSTRUCTION IN FULL SWING—Fleet of mobile, revolving cranes at work handling excavation and concrete within the 13-acre cofferdam area.

©Bing Galloway

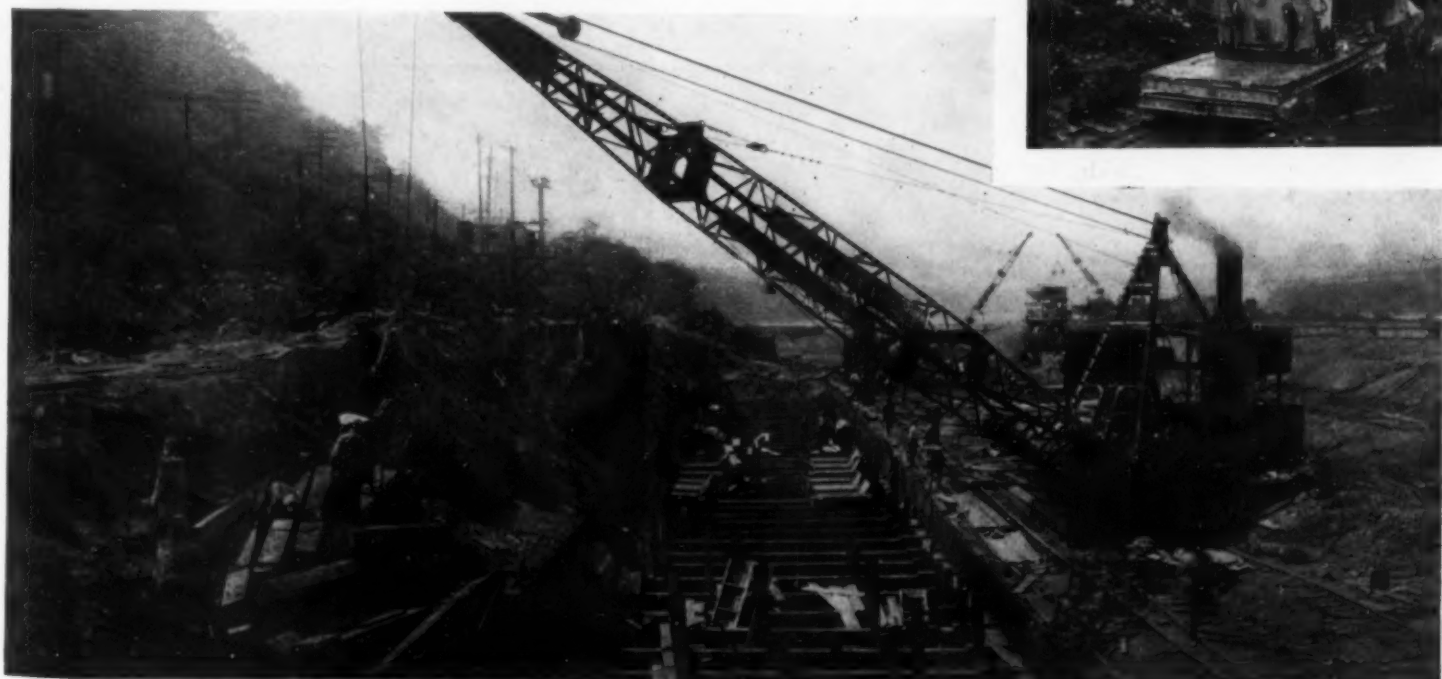
Deadman Island Locks Within Cofferdam

the river, as it has done several times, overflows the cofferdam walls. In its present stage, with excavation completed, the job is essentially one of mixing and placing mass concrete in the lock walls. In all, the work requires the placing of 120,000 cu.yd. of concrete and 280,000 cu.yd. of excavation.

The cofferdam area is served by two systems of trackage, one of standard-gage for industrial locomotive haulage and the other of 11-ft. 2-in. gage for a fleet of Wiley whirley steam-operated cranes mounted on wheels.

AT EACH end of the cofferdam the contractor has established a central concrete mixing plant comprising a 2-yd. electrically operated Smith mixer receiving measured batches of aggregate and cement from Blaw-Knox overhead steel bins. A large floating dredge in the river supplies sand and gravel for the concrete. It delivers on to scows which are moved up under the booms of the Whirley cranes on the cofferdam walls and unloaded by clamshell bucket either to stock piles or direct to the mixer bins. Only a small amount of

A 2-YD. BUCKET (below) of concrete on its way from flat car to lock wall.



THE LAND WALL excavation at the base of a steep hillside involved a deep, heavily timbered trench protected by steel sheet piling.



aggregate is stocked, for in case of flood it is washed away and lost.

Cement is received at two sheds along the railroad tracks on the hillside (one for each mixer) and transported to the mixers in special buckets by aerial tramways spanning the width of the cofferdam inclosure.

From each of the mixers 2-yd. batches are dumped into Stuebner

buckets and transported on flat cars by standard-gage gasoline industrial locomotives to points from which the buckets are picked up by whirley cranes and delivered to the forms. Operations are now progressing under the direction of George S. Lamphere, successor, as resident engineer, to Mr. Maxon, following his promotion to the position of field supervi-

ing engineer. A. G. Brumitt is superintendent.

As the work is located at the foot of a steep hillside, yard space could be procured only on a narrow, filled bank extending approximately $\frac{1}{4}$ mile upstream from the job. This called for standard-gage equipment from yard into the cofferdam.

An interesting feature of the job is

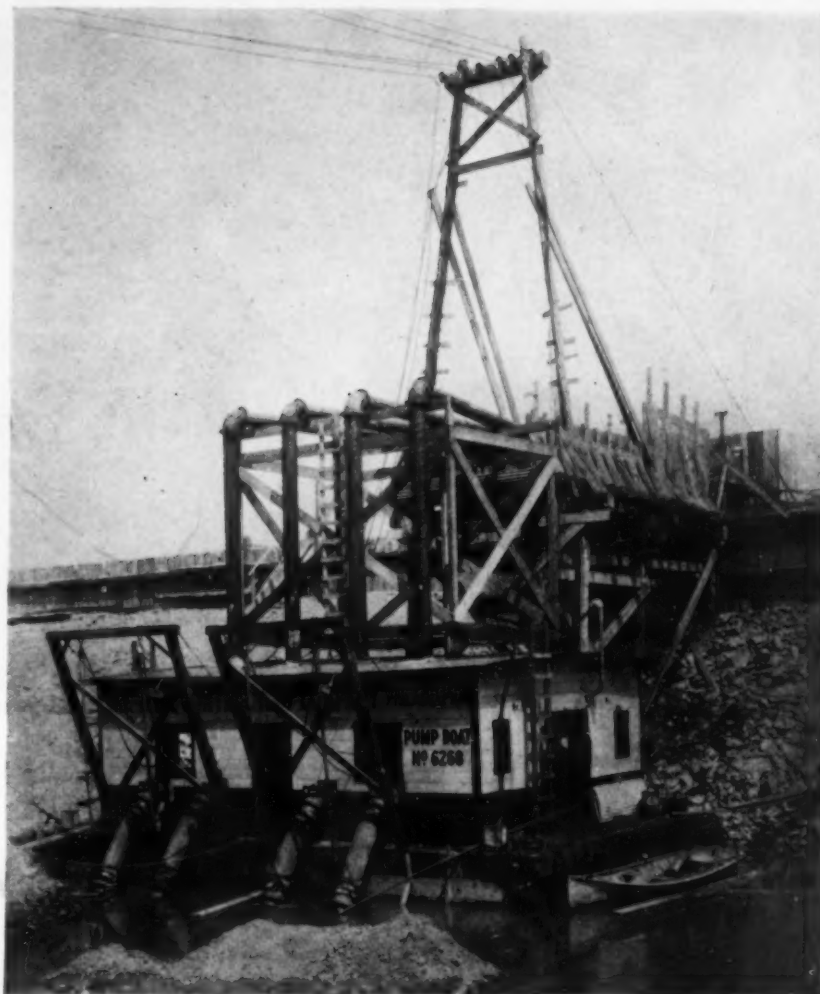


FORMS in place for the land wall of the locks, with cranes (in background) which handled the concrete in 2-yd. buckets delivered on flat cars by gasoline locomotives.



DIGGER BOAT (left) which helped to excavate cofferdam area and then kept mixer plants supplied with sand and gravel dredged from river bed.

FOR UNWATERING the cofferdam (right) there's a pump boat with five 5,000-gallon-per-minute electrically-driven centrifugal units.



the housing and feeding of 350 men in floating camps on barges.

Deadman Island locks are being constructed for the federal government under the supervision of Major Jarvis J. Bain, Corps of Engineers. For the U. G. I. Contracting Co. W. L. Chew-ning, vice-president, has general administrative control over construction.



Next Month

Reconstructing High Bridge

A job involving removal of old masonry structure over Harlem River, New York, and replacement with a big steel arch

MIXING PLANT equipped with 2-yard electrically-driven unit and overhead batching bins fed by crane with sand and gravel aggregate dredged from river. Cement delivered by aerial tramway.



TAKING A BITE out of the rocky Tennessee mountainside with one of the ten power shovels on the job.



JOHN S. DEMPSTER, general superintendent and one of the five brothers of the Dempster organization.



M. D. PATTESON, resident engineer, who formerly built highways in Mexico.

10 Power Shovels *for Dixie Highway*



INCLINED RUNS, with steam hoists to handle the cars serving the shovels, are used in many of the cuts and fills.

LOADING UP one of the dinkey-hauled trains of side-dump cars on a steep sidehill.

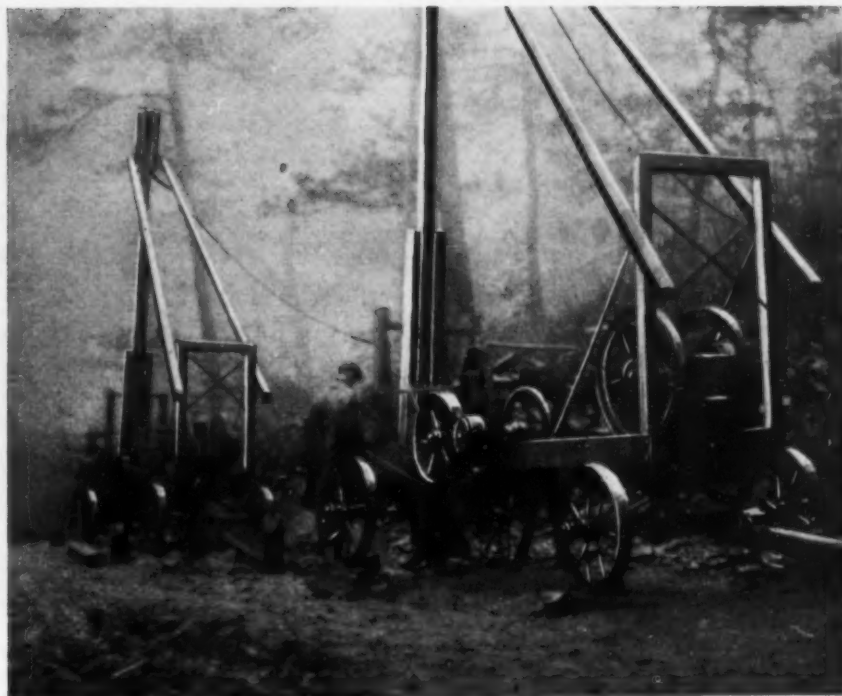
TO CARVE out a brand new route for an 18-mile link of the Dixie Highway along the mountainsides of Tennessee the Dempster Construction Company, of Knoxville, Tenn., holding the general contract, and M. A. Wheeler, with a subcontract for 6½ miles of the line, recognized the need of a large quantity of heavy equipment and assigned to the job 10 power shovels, 11 air compressors, 7 well-drill rigs, 15 pumps and 8 concrete mixers, in addition to the necessary dinkey locomotives, tractors and motor trucks.

The work is mostly along steep slopes and the grading consists principally of sidehill casting. Of 600,000 cu.yd. of excavation involved, about 300,000 cu.yd. is rock. Gray and brown sandstone are the principal varieties, with a great deal of shale, slate and limestone. Cuts run as deep as 50 ft. on the high side of the route. The link is entirely new location.

Steam shovel sizes vary from ¾ to 1½ cu.yd. On the 12 miles at the south end the Dempster company is using 7 shovels; M. A. Wheeler is keeping three shovels, all of ¾-cu.yd. capacity, busy on his 6½-mile section. Not all these shovels were brought in at the



J. B. SMITH (on horseback), bridge superintendent and N. L. Coiner, junior engineer for state highway department.



WELL-DRILL RIGS put down the holes for some of the big blasts needed to grade the right-of-way.

Grade 18-Mile Link *Through Mountains*

start. The number was increased as roads were opened to get the newcomers into working position.

Both gravity runs and dinkeys are used in the cuts and fills. Steam hoists and cables return the cars to the shovels when the gravity method is employed. The 18-ton locomotives generally haul four 5-cu.yd. cars.

Well-drilling rigs, with 4 to 6½ in. bits, put down the holes for heavy blasts in through cuts and sidehill cuts. Holes are drilled on 10-ft. centers to 2 ft. below grade. One row is placed 1 ft. back of the ditch line. This row is the only one needed on many sidehill blasts. Pieces of rock too large for the shovel to handle are drilled and broken.

BRIDGES AND CULVERTS

Five bridges and numerous culverts are included in the project. Many of the culverts are on steep slopes. The photographs show the construction of several of these structures. Riser blocks on the tops and bottoms of steep culverts are standard in Tennessee; they are named "skid blocks" by the men on the job, as their purpose is to prevent slips of the fill. Diversion dams are used to good effect



ON HEAVY GRADES three loaded cars make a train-load for one of the steam dinkeys.



STRIPPING FORMS on one of the piers for the Hickory Creek concrete bridge. Bent tops are stepped to provide superelevation, as roadway is on curve.

A Few Items of EQUIPMENT INVENTORY

Power Shovels

- 1 Bucyrus, 1 1/4-yd.
- 2 Marions, 1 1/4-yd.
- 2 Thews, 1 1/4-yd.
- 1 McMyler, 3/4-yd.
- 4 Eries, 3/4-yd.

10 Units

Air Compressors

- 3 Sullivan, 310 cu.ft.
- 2 Sullivan, 220 cu.ft.
- 1 Sullivan, 600 cu.ft.
- 3 Ingersoll-Rands
- 2 O.K. Clutch & Mch.

11 Units

Drills (hand hammer)

- 9 Ingersoll-Rands
- 4 Sullivans
- 1 Chi. Pneumatic

14 Units

Drill Sharpeners

- 2 Sullivan

Well Drill Rigs

- 7 Fergusons

Dump Wagons

- 10 Wagons

Pumps

- 9 Camerons (steam)
- 2 Jumbo
- 1 Fuller & Johnson
- 3 Diaphragm

15 Units

Mixers

- 2 Smiths (2 bag)
- 5 Jaegers (1 Bag)
- 1 Ideal (1 bag)

8 Units

Holts

- 3 American
- 1 Clyde

4 Units

Dinkeys

- 2 Davenport (18-ton)

Cars

- 16 Koppel (5-yd.)
- 2 Western (5-yd.)

Tractors

- 3 Caterpillars

Trucks

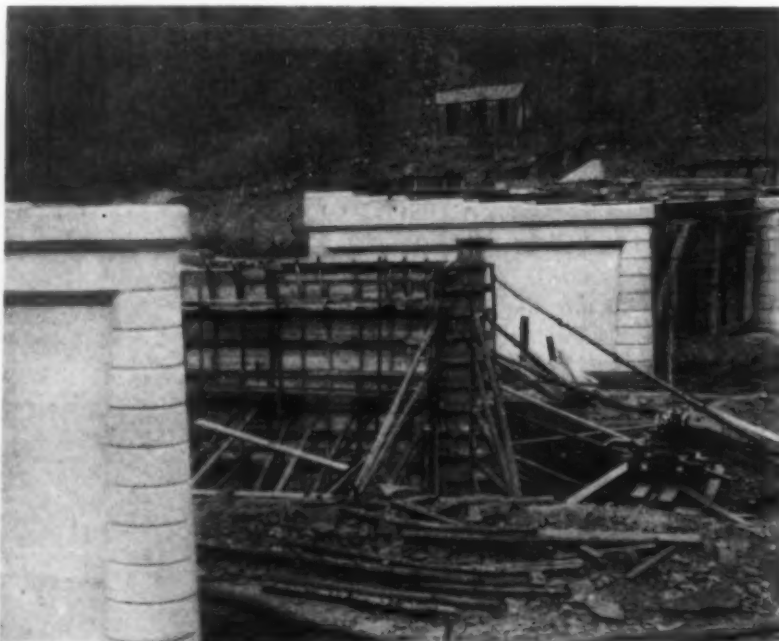
- 2 Macks
- 4 Ruggies

6 Units

in the construction of the bridges; they obviate the need of cofferdams for the piers.

John S. Dempster, one of the five Dempster brothers in the construction organization bearing their name, is in general charge of the work. Assisting him are O. C. Calvert, assistant superintendent, and

J. B. Smith, bridge superintendent. M. A. Wheeler is directing operations on his subcontract. For the Tennessee Department of Highways and Public Works, of which C. N. Bass is commissioner, M. D. Patteson, resident engineer, is in charge, assisted by N. L. Coiner and G. S. Higgs.



WOOD FORMS for the concrete bridge piers which are carried to 16 ft. below stream bed level without use of cofferdams. Diversion dams kept the hole dry.



"SKID BLOCKS" (left) are a feature of culvert construction on sidehill locations to prevent backfill slipping.

Who's Getting the Big Contracts?

A Monthly Guide to Where the Construction Dollar is Being Spent

Pacific Coast

Longview, Wash.
Bridge: Est. \$5,000,000
Strauss Eng. Corp., Engrs.
Chicago, Ill., Olympic Constr.
Co. and Hart Constr. Co.
Longview
San Francisco, Calif.
Power plant: \$4,000,000
McClellan & Junkersfeld, Inc.
68 Trinity Place, New York
Los Angeles, Calif.
Road improvement: \$578,331
E. L. Fleming, P. O. Box 747,
Glendale, Calif.
Sacramento, Calif.
Theatre: \$750,000
Campbell Constr. Co., 800 R
St.
San Francisco, Calif.
Hotel: \$750,000
K. E. Parker, South Park St.
Huntington Park, Calif.
Furniture factory: \$200,000
C. L. Peck, Inc., 721 H. W.
Hellman Bldg., Los Angeles
Los Angeles, Calif.
Hotel, library, etc.: \$675,000
W. G. Reed, 254 Miramar
Ave., Long Beach
Los Angeles, Calif.
Garage and sales: Est. \$600,000
Lynch-Cannon Eng. Co.,
Chapman Bldg.
Eugene, Ore.
Machine shop: \$250,000
H. E. Wilder, Eugene
Hermosa Beach, Calif.
Paving: \$303,265
Johnson & Sons, 4183 South
Normandie Ave., Los Angeles
Calif.
Los Angeles, Calif.
Office: \$794,284
Schofield-Twaits Co., 621 South
Hope St.
Fresno, Calif.
Ice plant: \$261,800
Lynch-Cannon Co., Chapman
Bldg., Los Angeles

West of Mississippi

Corpus Christi, Tex.
Compress and storage plant:
Est. \$1,250,000
A. S. Bergendahl, Corpus
Christi
New Braunfels, Tex.
Power plant: \$1,500,000
United Gas & Improvement
Co., c/o Cornal Power Plant,
New Braunfels
Houston, Texas
Store and office: Est. \$3,000,000
Hewitt Constr. Co., 532
Bankers Mortgage Bldg.,
Houston
Boling, Tex.
Sulphur plant: \$2,000,000
Texas Gulf Sulphur Co.,
owner and builder, 41 E.
42nd St., New York
Milwaukee, Wis.
Subway and elevated line: \$4,-
000,000
Milwaukee Electric Ry. &
Light Co., 217 Michigan St.,
own forces
Montezuma, Ia.
Roads: \$473,356
W. Horrabin Constr. Co., 15
East College St., Iowa City
Springfield, Mo.
Dam: Est. \$500,000
Burnip Constr. Co., 568 E.
Broad St., Columbus, O.
Lincoln, Nebr.
State Capitol Building: \$1,049,-
000
Peter Klewits & Sons Co., 908
Omaha Nat'l Bank Bldg.,
Omaha, Nebr.
Tulsa, Okla.
Hotel: Est. \$900,000
Manhattan Constr. Co., Court
Arcade Bldg.
Iowa
Highways: \$2,603,615
W. Horrabin Constr. Co., Iowa
City, Ia. (\$658,374), Johnson,
Drake & Piper, Minneapolis,
Minn. (\$646,703), and others

The MAN and the JOB

ON THIS PAGE *Construction Methods* lists some of the high-spot jobs for which important contracts have recently been let.

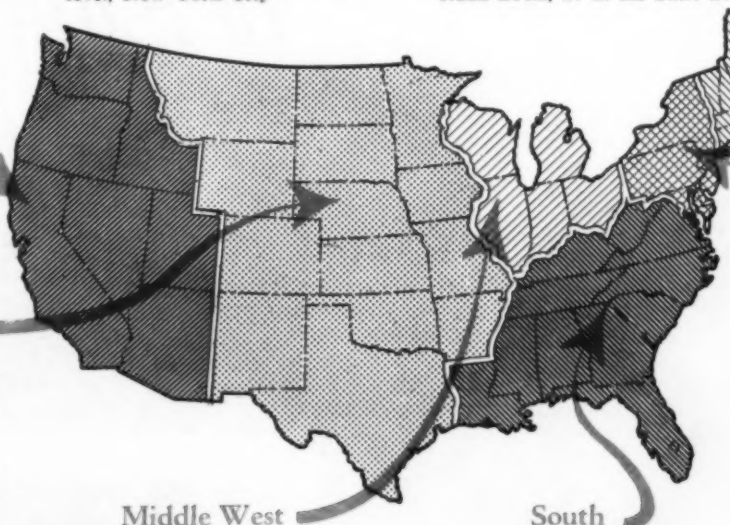
If you are looking for an opening in new territory, the information on this page may be of help in indicating where construction is active.

The contracts listed are, of course, only a few of the total number recently let. You may wish to ask about others. If so, address your inquiries to:

The Editor, *Construction Methods*,
Tenth Ave. at 36th St., New York

Des Moines, Ia.
Exchange: \$800,000
Piling and excavation, A. H.
Newman & Co., 519 Hubbell
Bldg.
Kansas City, Mo.
Office: Est. \$1,750,000
Swenson Constr. Co., Shubert
Bldg.
St. Louis, Mo.
Warehouse: Est. \$2,000,000
Starrett Bros., Inc., 101 Park
Ave., New York City

Detroit, Mich.
Store and warehouse: Est. \$6,-
000,000
B-W Constr. Co., 720 Cass
St., Chicago, Ill.
Evanston, Ill.
High school: Est. \$400,000
R. Sollitt & Sons, 228 North
La Salle St., Chicago
Chicago, Ill.
Substation: \$532,030
Nash Bros., 10 S. La Salle St.



Middle West

Chicago, Ill.
Apartment: Est. \$1,300,000
B-W Constr. Co., 720 Cass St.
Apartment and store: Est. \$1,-
000,000
Trimmer-Nydele Co., 111 West
Washington St.
Club: Est. \$2,500,000
Thompson-Starrett Co., 104
South Michigan Ave.
Hospital: Est. \$2,000,000
G. A. Fuller & Co., 140 South
Dearborn St., Chicago
Office and store: \$2,500,000
Dilks Constr. Co., 160 N. La
Salle St., Chicago
Cleveland, Ohio
Bridge: Est. \$2,000,000
Hecker-Moon Co., 8701 Union
Ave., Cleveland
Illinois
Bridges: \$793,426
Stein Constr. Co., 425 E.
Water St., Milwaukee, Wis.
(\$138,885), Milwaukee Bridge
Co., 1400 34th St., Milwaukee,
Wis. (\$321,913)
Cincinnati, O.
Factory: \$400,000
Roos-Meyer-Hecht, 2824 Stan-
ton St.
Michigan
Highway: \$448,617
Lewis & Frisinger, Ann Arbor
Indianapolis, Ind.
Hospital: Est. \$500,000
L. Colvin, Continental Bank
Bldg.

South

St. Marys, W. Va.
Bridge: Est. \$1,500,000
General Constr. Co., Columbia
Bank Bldg., Pittsburgh, Pa.
Steel to American Bridge Co.,
208 S. La Salle St., Chicago,
Ill.
Atlanta, Ga.
Temple: \$2,000,000
C. A. D. Bayley & Co., Inc.,
C. & S. B. Bldg.
Winston-Salem, N. C.
Theatre: Est. \$1,000,000
J. P. Pettyjohn & Co., 212
8th St., Lynchburg, Va.
Louisville, Ky.
Sewers: \$279,000
W. E. Callahan Constr. Co.,
Arcade Bldg., St. Louis, Mo.
Louisville, Ky.
Bank and office: Est. \$500,000
St. Louis Bank Bldg. & Equip-
ment Co., 900 Sidney St., St.
Louis, Mo.
North Carolina
Highway: \$288,909
Stearns Bros., Inc., States-
ville
Raleigh, N. C.
Apartment hotel: \$414,800
J. W. Hudson, Jr., Tarboro
Tennessee
Paving: \$1,759,895
Nat'l Constr. Co., Jacksonville,
Fla. (\$571,952), J. R. Feigel
& Co., Evansville, Ind. (\$283,-
751) And others

New England

Massachusetts
Highways: \$224,637
Interstate Highway Constr.
Co., 200 Hancock St., Quincy
Connecticut
Highways: \$1,200,085 (Total)
New Haven Constr. Co., 70
Hill St., New Haven, Conn.
(\$331,401)
L. Suzio Constr. Co., Brook-
and State Streets, Meriden
(\$193,505)
And others
Cranston, R. I.
Warehouse, Bakery, etc.: Est.
\$750,000
Long Constr. Co., 470 Atlan-
tic Ave., Boston
Worcester, Mass.
Nurses home: \$397,378
J. W. Bishop Co., 109 Foster
St. (general contract)
Swampscott, Mass.
Apartment: \$50,000 (Est.)
Duncan Constr. Co., 2 Market
St., Lynn, Mass.
Providence, R. I.
Store: Est. \$200,000
B. Hunt, archt., 32 West-
minster St., separate contracts
Massachusetts
Bridge: \$167,500
General Constr. Co., Inc.,
Bath, Me.
Roxbury, Mass.
Apartment: \$250,000
B. Swartz, 77 Greenwood St.,
Dorchester, by day labor
Norwalk, Conn.
Factory: Est. \$70,000
Hewlett Co., 886 Main St.,
Bridgeport

Middle Atlantic

New York, N. Y.
Stores and loft: \$1,800,000
Alan Realty Co., Bark &
Djarup, archts., 1351 Bway.,
separate contracts
Hotel: Est. \$20,000,000
Mack Kanner & J. S. Becker,
145 West 57th St.
Apartment: \$4,000,000
F. B. Hoffman, Jr., archt., 147
E. 51st St. Separate contracts
Hotel and stores: Est. \$3,000,000
Shroder & Kopel, 420 Lexing-
ton Ave.
Loft: Est. \$1,200,000
Magoba Constr. Co., 271
Madison Ave.
Jamaica, N. Y.
Theatre: Est. \$1,000,000
Thompson Starrett Co., 250
Park Ave., New York
Brooklyn, N. Y.
Theatre: Est. \$1,200,000
Thompson Starrett Co., 250
Park Ave., New York
Elizabeth, N. J.
Office and theatre: \$1,200,000
H. A. Hamilton, engr. and
archt., 369 Lexington Ave.,
New York. Separate contracts
Mayview, Pa.
Home and hospital: \$1,576,726
Nicola Building Co. (\$1,234,-
941), Penn and Denniston
Aves., Pittsburgh, Pa.
Pennsylvania, New Jersey
Bridge: \$1,007,545
Contr. 3. Dravo Contg. Co.,
Neville Island, Pittsburgh
East Orange, N. J.
Apartment: Est. \$1,000,000
Salmond & Scrimshaw & Co.,
526 Elm St., Arlington
Long Island City, N. Y.
Distributing station and ware-
house: Est. \$600,000
Barney Ahlers Constr. Co.,
Metropolitan Ave., Brooklyn,
N. Y.
Pittsburgh, Pa.
Hotel: Est. \$2,000,000
F. T. Ley Co., 578 Madison
Ave., New York
Washington, D. C.
Hotel, auditorium and conven-
tion hall: Est. \$3,000,000
James A. Stewart & Co., 1420
New York Ave., N. W.



TAKING A SHORT REST. Back from different jobs for a tuning up, these Thew, Erie and Northwest shovels wait in the yards of Julius Porath & Son, city paving contractors of Detroit, Mich., for overhauling.

Contractor Applies “Stitch in Time” Principle to Equipment

“EXCUSE OUR BACKS!” We've got to eat lots of oats to keep up with those noisy trucks and steam shovels. The boss doesn't use so many of us any more.”



AFTER THOROUGH INSPECTION the shovel receives a new coat of paint before it goes back on the job.

EACH OPERATOR is responsible for his own shovel, keeping it in condition and overhauling it each spring, under supervision of the master mechanic.





JUST A SMALL SQUAD of the fleet of 32 trucks used by the contractor. Skilled mechanics in the Motor Truck Department service them, and also repair all gasoline motors on tractors, air compressors, and paving mixers.

A Tour of the Repair and Storage Yard Maintained by Julius Porath & Son of Detroit

TO KEEP the large amount of mechanical equipment used by the modern paving contractor in good running condition means merely the application of the old principle: "A stitch in time save nine." The

manner in which this is done by Julius Porath & Son of Detroit, Mich., is shown in the accompanying pictures of that organization's storage and repair yard activities.

In addition to overhauling their power shovels every year, the contractors provide immediate repair service by keeping on hand a large stock of parts. The shovels are carried to and from jobs by two large trailers which, together with all trucks, pavers, mixers, compressors and other gasoline motor equipment, are maintained by the motor truck department.

The mixer department takes care of

fourteen small concrete mixers used to supplement three 27-E pavers doing most of the heavy work. Under the head of general maintenance is included upkeep on six gasoline locomotives used for hauling concrete, repairing two tractors, one 10-ton and the other 2-ton, and revamping a lot of miscellaneous equipment.

Besides fixing up its own equipment, the Porath firm has allowed engineers and manufacturers to use its excellent yard facilities as a proving ground for innovations in road machinery, and some valuable improvements in design have resulted.



TRACTORS, MIXERS, GRADERS—all are kept constantly tuned up by the maintenance crew.

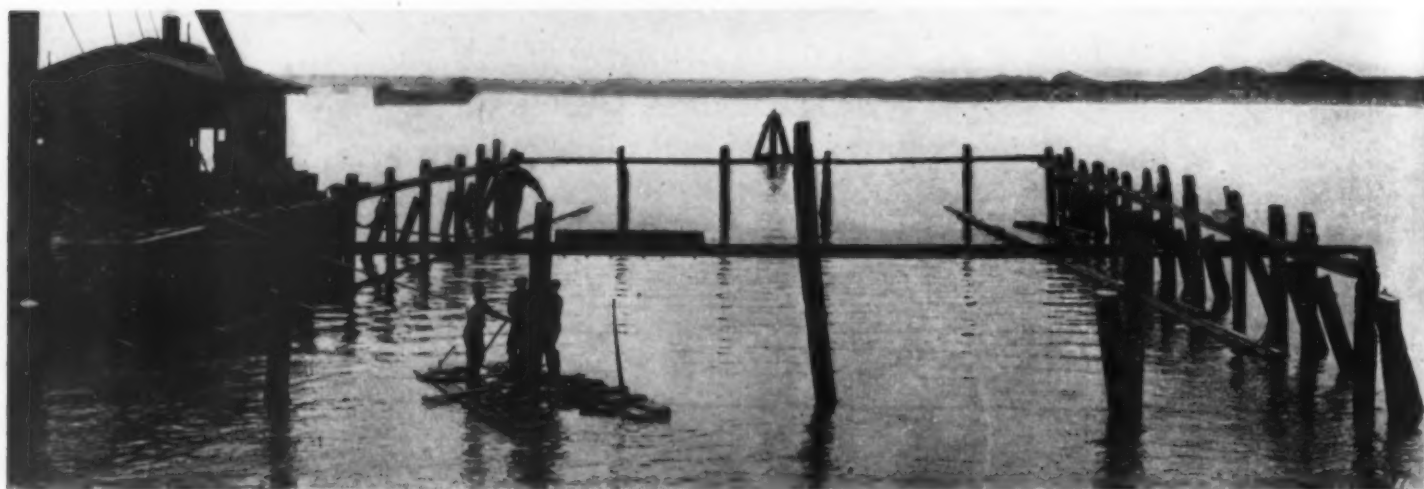
THE PAVERS, ALSO, go through a rigid examination and overhauling. Three Ransome 27-E machines are operated by the Porath organization.

Step-by-Step Building Cofferdams for

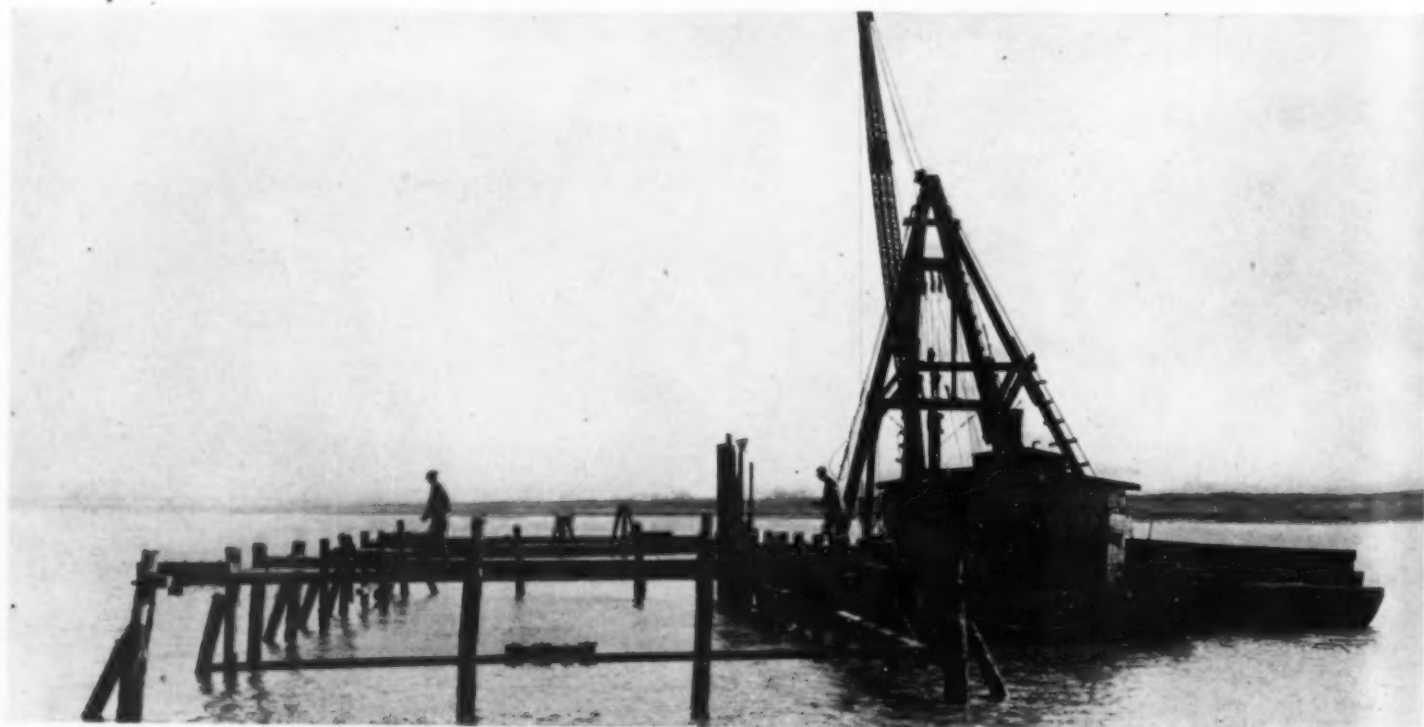


GEORGE A. FOLLETT, Superintendent (in the overcoat), H. N. Crichton, Resident Engineer and H. P. Converse, President of the contracting company.

FOR more than a decade H. P. Converse & Company, contractors, of Boston, Mass., have used the method illustrated in the accompanying pictures to construct and underwater cofferdams. Piling is driven and excavation is completed before bracing is installed. Circumstances forced the use of this method in the first case; it proved so successful that it was adopted as regular practice by the or-



ROUND PILES to outline the cofferdam are driven approximately 1 ft. outside the line of sheeting. These piles are spaced 8 ft. apart and are later connected with three lines of walers to form a guide frame for the Lackawanna sheet piling.



DRIVING was started at one corner. A spirit level was used on each pile to keep the piling plumb.

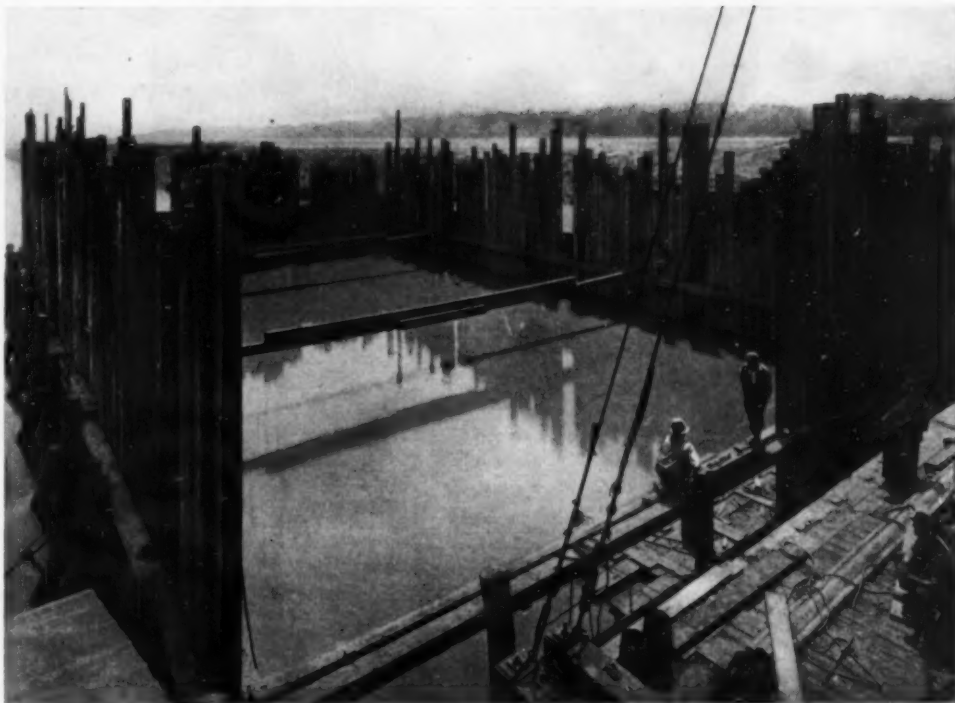
Field Methods

Arlington Bridge Piers

ganization. It was this method, therefore, that the Converse Company applied to the building of the piers for the Arlington Memorial Bridge across the Potomac River in Washington, D. C.

The piers are founded on mud-covered rock at an average depth of 38 ft. below low water level. Irregularity of the rock surface increased the difficulty of producing watertight cofferdams. Under each pier variations in the subsurface elevation averaged about 10 ft.; at no place was a plane surface encountered. The piers are of concrete with granite facings to a point 3 ft. below low water and measure about 44 x 140 ft. in plan.

For the contractor George A. Follett is superintendent, with H. P. Converse also taking an active part in the field work of his organization. Col. U. S. Grant, 3rd, Corps of Engineers, U. S. A., heads the Arlington Memorial Bridge Commission's forces, with Major J. C. Mehaffey supervising design and construction and H. N. Crichton, resident engineer. The consulting engineer is W. J. Douglas of New York.



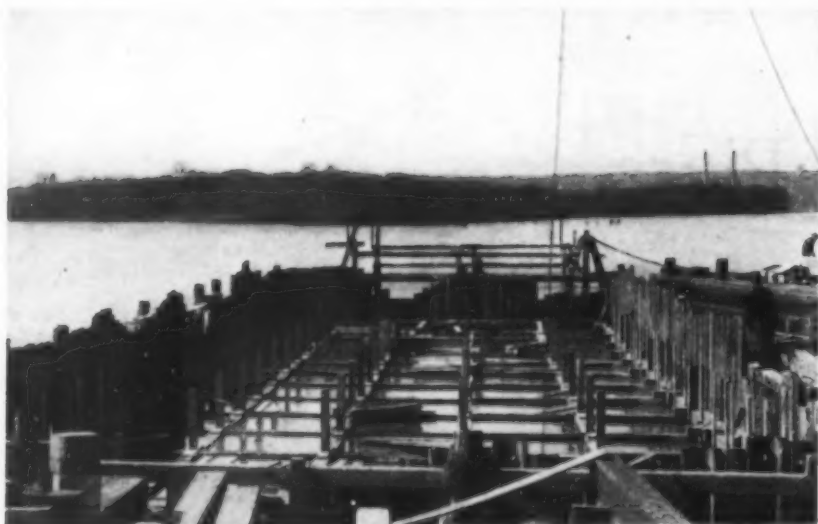
THE SHEET PILES were set in the mud. At intervals a pile would be driven to rock and bolted to the waler. This pile supported the wall of sheeting and prevented sagging under wind or tide action.



AFTER CLOSURE had been made, the piles were driven to rock and a partial set of bracing was framed at the surface to steady the piling while excavation was carried on.



WHEN CLAMSHELL EXCAVATION had been completed, careful soundings were taken to determine high points of rock surface, and the partial set of bracing was filled in to form the bottom set of rectangular bracing for the cofferdam. The peaks in the rock surface established the elevation of the bottom set when sunk to position.

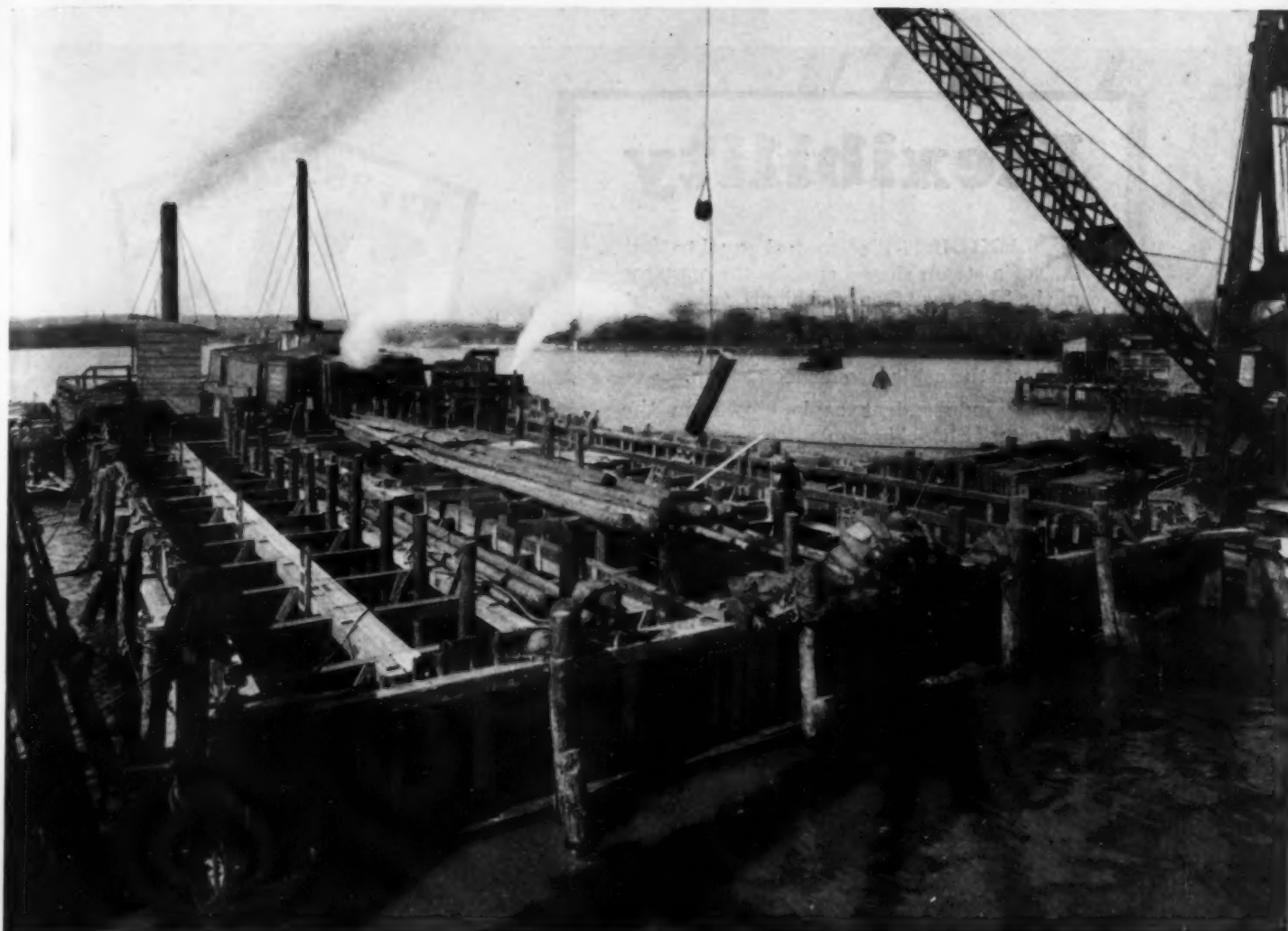


VERTICAL POSTS (*left*) were erected on the bottom set to support the second set. The variation in heights of the tops of the piles shows the irregularity of the rock surface.



AS ADDITIONAL SETS (*above*) were built on, the frame sank under its own weight. Keeping piling plumb allows sets to be framed within 1 or 2 in. of sheeting. When the fourth set had been reached, sand bags were put on frame to sink it.

ON THE FIRST PIERS (*left*) round piles supported bracing during unwatering. On later piers vertical posts beneath the bottom, set by divers, supported load when water was pumped out. When cage of bracing had been sunk, it was held by bolting timbers to piles, using the pulling holes in the piles for this purpose. Piling was sealed at the bottom by grout.



THIS LARGE CAGE of bracing was weighted at the center to prevent buckling caused by tide action. The sides were blocked against the walers of the guide frame.



BLOCKING under bottom set was placed and wedged by divers before the cofferdam was unwatered, and the bottom was cleaned with a pressure hose before the concrete seal was poured.



CONCRETE was poured in lifts up to the sets of bracing. After the bracing had been blocked up, the set next to the concrete could be removed. Thus, nothing but the blocking was left in the concrete.

Flexibility

FLEXIBILITY of control equal to that of a steam shovel enables the operator of the "Master" Gas to shake the dipper at will with a touch of the lever. The patented shock absorber at the base of the boom protects the cables from shock strain.

This independent cable crowd on the "Master" Shovel not only helps in dumping sticky material, but enables the dipper to hold a level grade in digging.

Extraordinary speed and power (90½ h.p. Hercules Engine on the 1 yd. machine, 107 h.p. on the 1¼ yd.) are backed up by unusually rugged construction. Direct drive to crowd, hoist and swing insures ample power for each operation.

We want you to compare the "Master" Gas Shovel on every point with other machines, then let your good judgment decide.

*Wire or send the coupon
for full information.*

**THE BYERS MACHINE COMPANY
RAVENNA, OHIO**

Sales and Service Throughout the Country

Builders of the Bear Cat, ½ yard; the Bear Cat "Whirly," ¾ yard; the "Master" Shovels, 1 and 1¼ yards; and Massillon Steam Shovels.

The patented shock absorber at base of boom takes shock strain off cables and greatly extends their life.



BYERS "Master" Gas

**Shake the
Dipper like
a Steam
Shovel**



Shovels . .

THE BYERS MACHINE CO., Ravenna, Ohio
Send the Booklets checked so that we may become
further acquainted with The Great Byers Line.

- ☐ Byers Master Shovels, 1 and 1½ yards.
- ☐ Byers Bear Cat, ½ yard, half-circle.
- ☐ Byers Bear Cat "Whirly," ¾ yd., full-revolving

Signed.....

Firm

Address

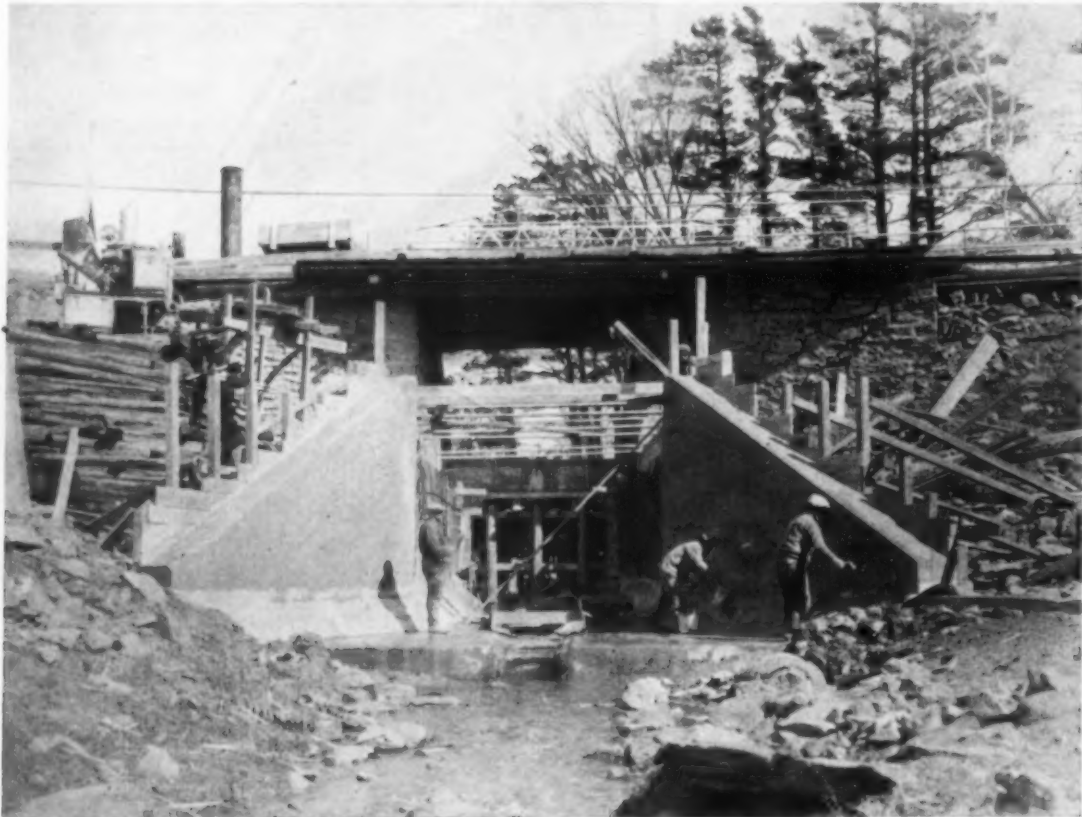
City.....State.....

C.M. 4-28

This Month's Prize Winners

First Prize \$25⁰⁰

Won by GEORGE C. STANLEY,
City Engineer and Superintendent of Streets,
Burlington, Vt.



TRAFFIC WAS MAINTAINED on roadway while new concrete culvert was built between the crumbling stone masonry abutments of the old Potash Brook bridge in Burlington, Vt. Most of the concrete was poured at zero temperature; boiler furnished heat for mixing water and live steam for curing under canvas covers.



NEW CULVERT increases roadway width from 21 to 42 ft. It has a 9x11½-ft. cross-section and a barrel length of 100 ft. Roof and floor are 2 ft. thick and side and wing-walk 18 in.



BACKFILL COMPLETED after removal of old bridge. More than 6,000 cu.yd. of earth were required to bring the shoulders to grade. The total cost of this job was \$20,500.

in the Photographic Contest



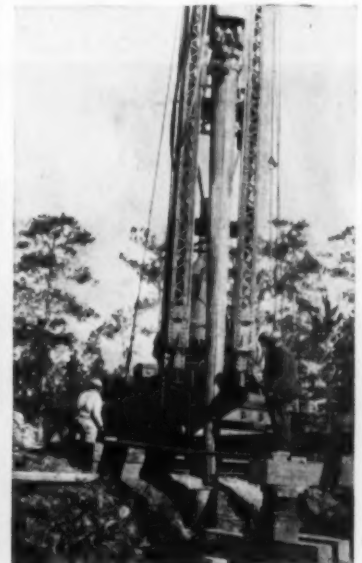
*Second
Prize
\$15⁰⁰*

Won by F. C. HUFFMAN,
Assistant Chief Engineer,
Chicago & Northwestern
Railway Co.,
Chicago, Ill.

LARGEST AND HEAVIEST girder ever erected on the C. & N. W. Ry. for three-track span over Ashland Ave., Chicago. Girder is 100 ft. long and weighs 117 tons. For the railway the job was done under the direction of W. J. Towne, chief engineer, assisted by O. F. Dalstrom, engineer of bridges, and J. S. Pole, assistant engineer, track elevation.

*Third
Prize
\$10⁰⁰*

Won by E. A. STANLEY,
Resident Engineer,
State Highway Board
of Georgia,
Thomasville, Ga.



METHODS AND RIG for driving Raymond stub concrete piles for the Ochlocknee River bridge in Thomas County, near Thomasville, Ga.

Enter Your Photos for the May Contest

EVERY month *Construction Methods* awards three prizes of \$25, \$15, and \$10 for the most useful, novel, and attractive pictures taken on construction jobs.

New conditions for the contest, stated below, make it unnecessary for you actually to take the pictures yourself.

New Contest Rules

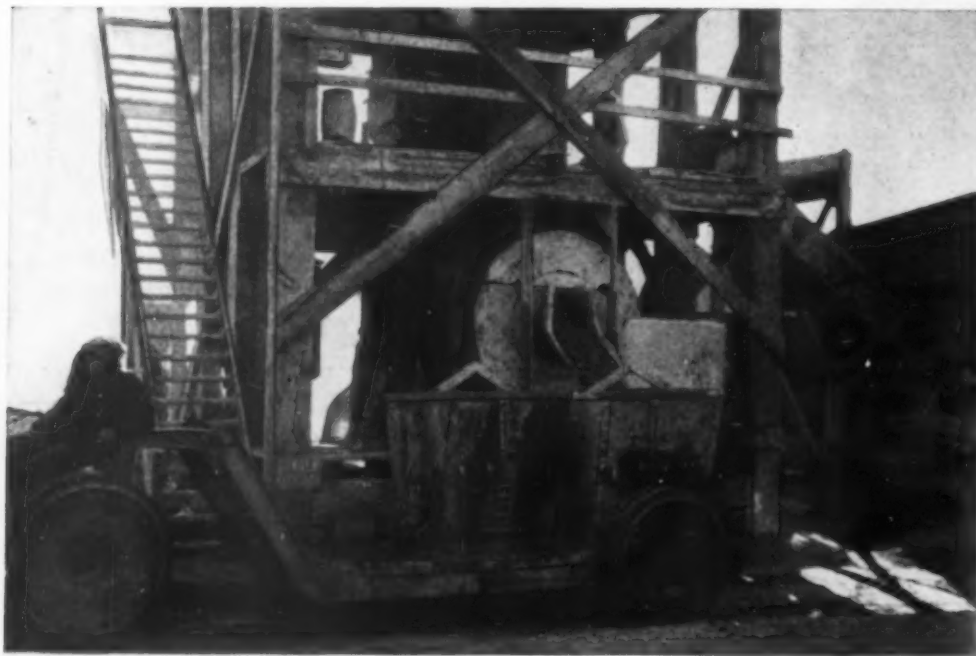
For the May contest, which closes April 9, the revised conditions are: Pictures must be submitted to *Construction Methods*, Tenth Avenue at Thirty-sixth Street, New York City, by a man regularly employed on the job, even

though he may not have taken the pictures himself. The pictures should be plainly marked "Photographic Contest." Those received after April 9 will be entered in the June contest.

Water-works construction photos are particularly desired for the June contest.

Getting Down to DETAILS

Close-up Shots
of Job
Methods and
Equipment



FOR DELIVERING CONCRETE from mixer to forms for the Walnut St. Viaduct, Roanoke, Va., R. C. Churchill Co., Inc., used tractor-hauled trailers with underslung platform bodies to carry 1-yd. buckets.



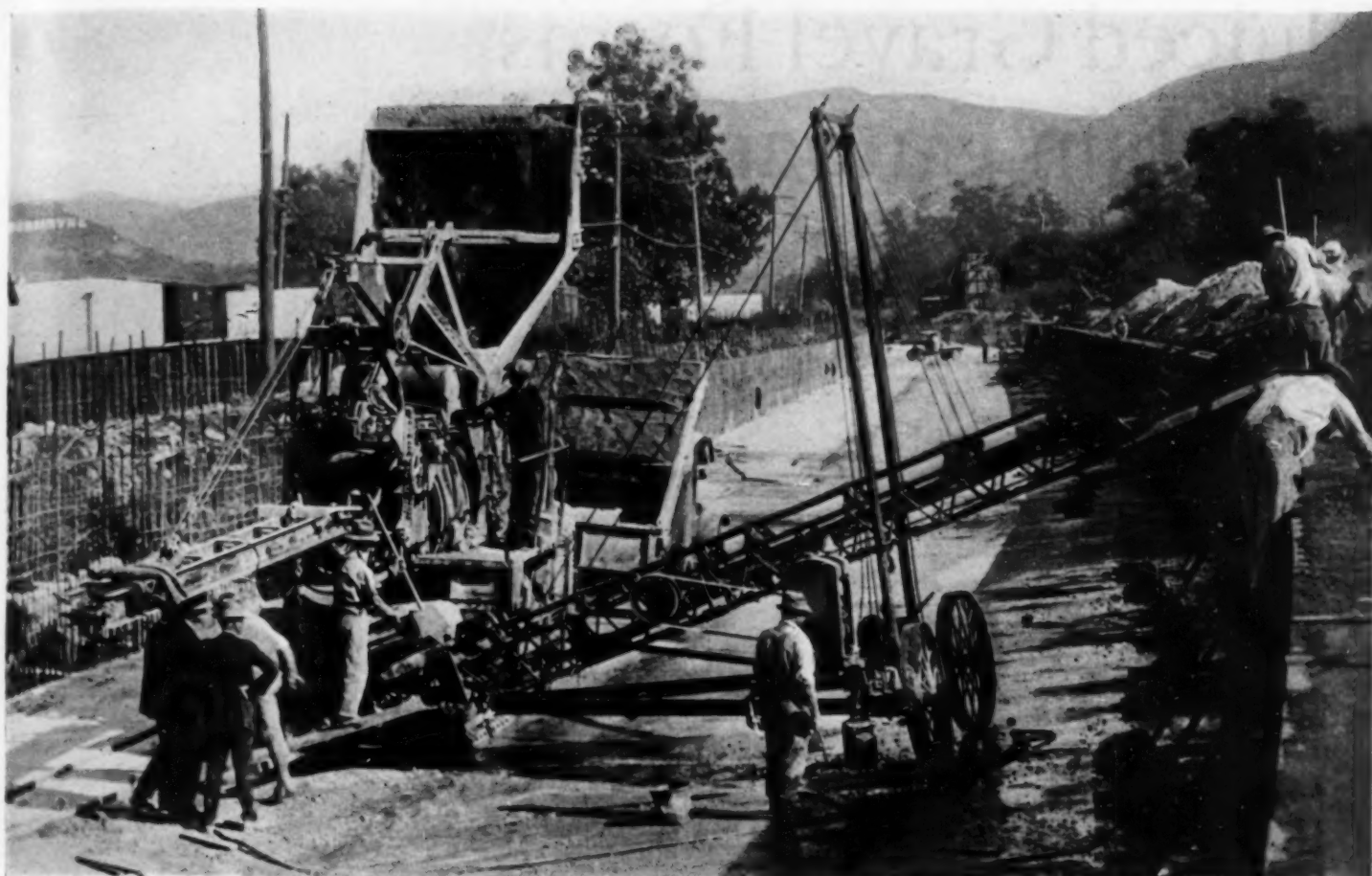
TALLEST MATERIAL ELEVATOR. On Bankers Trust Building in Chicago, Dilks Construction Company erected American Tubular Elevator 442 ft. high, with base starting at fifth floor of 42-story building.



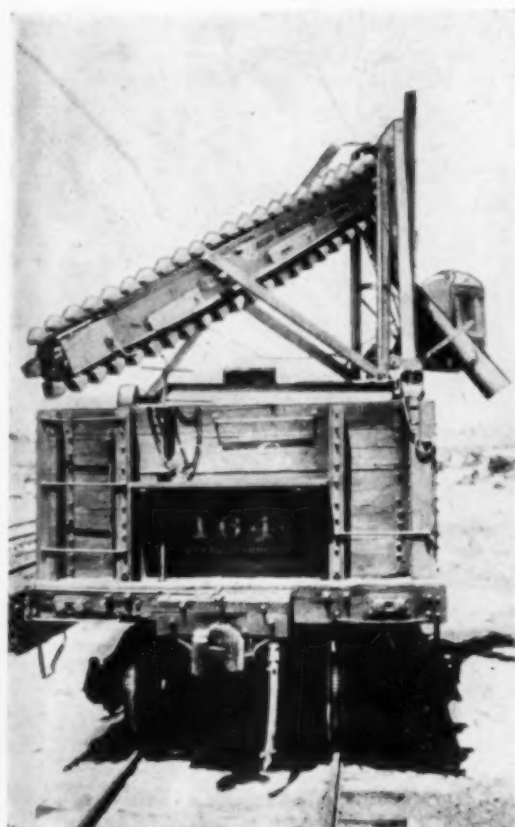
SPECIAL CLAMP (above) holds 24-in. deep-well pipe casings in place while 30-ft. sections are welded with Oxweld acetylene equipment.



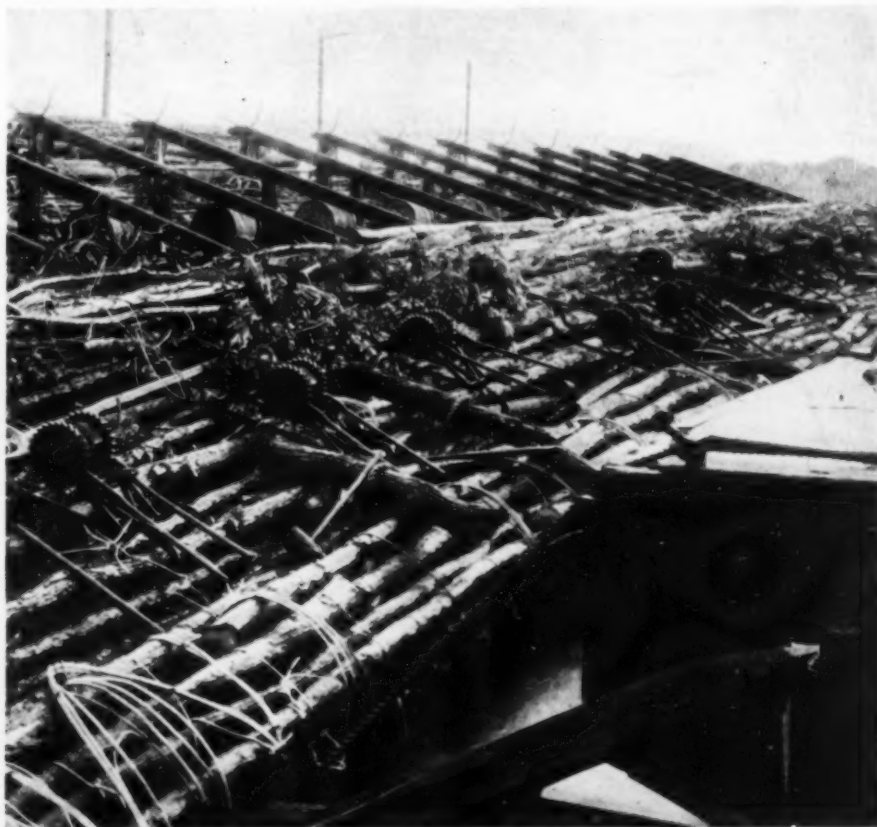
WELDED PIPE SECTIONS (right) form skid for moving construction houses in Texas oil fields.



CREDIT THE BELT CONVEYOR WITH AN "ASSIST." With the baseball season just starting, this play might be described as: "Concrete 'out,' mixer to conveyor to forms." The layout shows how the Roche Axman Company, contractor, used a Foote paving mixer, delivering to hopper on conveyor, to concrete the 8-ft. high wall of a 3,400-ft. flood control channel for Los Angeles County, Calif.



FOR UNLOADING open-top cars of sand and gravel, this portable bucket-conveyor rig was devised by R. C. Rosenberg of San Francisco.



FRUIT OF THE CONSTRUCTOR'S LOOM—Barge specially equipped for weaving mattresses of logs and brush for river bank protection in Mississippi Valley. This photo, from Marshall Gray, senior draftsman, U. S. Engineer office, Louisville, Ky., wins \$10 prize.

Sluiced Gravel Forms Main Embankment *for Guernsey Dam*

Diversion and penstock tunnels through rock are additional features of Wyoming power project

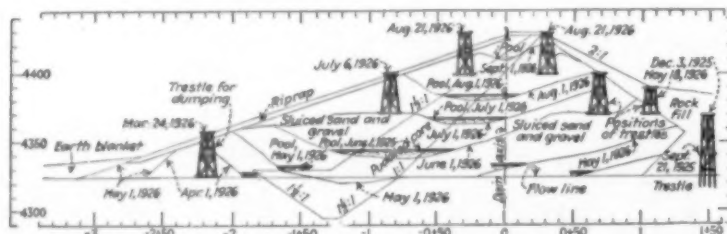
TO COMPLETE the Guernsey dam power development on the North Platte River in Wyoming for the U. S. Bureau of Reclamation, the Utah Construction Company handled 345,000 cu.yd. of sluiced sand and gravel and loose rock for the main embankment of the 105-ft. high structure and 176,000 cu.yd. of rock excavation for diversion tunnel and approaches for diversion tunnel and approaches, power tunnel, shafts and spillway channels. The crest length is 560 ft. and the thickness at the base, 1,000 ft.

As a preliminary to the placing of

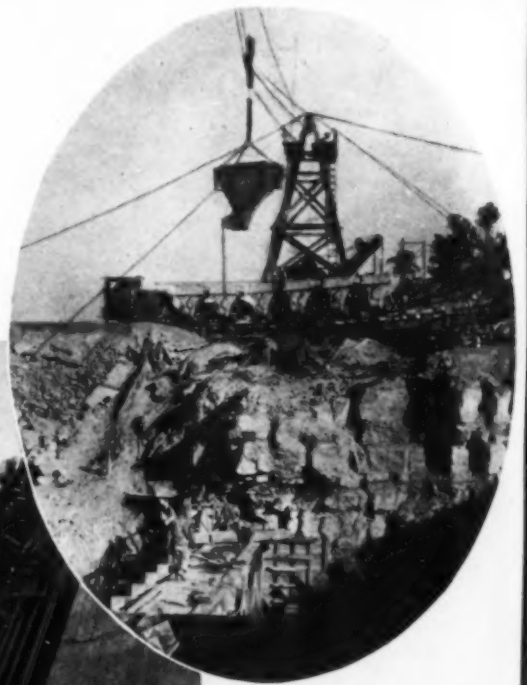
the material in the main section of the dam, the contractor drove two tunnels through rock, the longer or diversion tunnel with a 30-ft. horseshoe-shaped section and a length of 1,100 ft. for handling the flow of the river during construction, and the other 12 ft. in diameter, to serve as a penstock for the power plant built at the toe of the downstream slope. In addition, there were two spillway channels on the north and south ends of the dam and a cutoff trench 30 ft. deep across the old stream bed.

The contractor used the top heading

GUERNSEY DAM is a 100-ft. embankment of sand and gravel dumped from cars on trestles and sluiced to place.



DAM SECTION AND TRESTLE DIAGRAM



CABLEWAY (above) operated from drums of ordinary steam shovel, handles hopper-bottom bucket receiving concrete delivered by narrow-gage railway.

"BABY BUGGY" (left), a movable timber tower, handles concrete for spillway lining.



DISCHARGING CONCRETE
from cars into cableway bucket.



and bench method for the tunneling, and placed concrete lining behind forms in 20-ft. sections, handled by a traveling "jumbo." Cars running on trestles from a tower near the middle of the tunnel delivered the concrete in both directions.

For excavating the cutoff trench for the main dam, F. T. Crowe, superintendent for the contractor, revamped a Page dragline bucket for operation

by a slack line cableway, as illustrated in the picture on p. 28.

With the cutoff trench finished and the diversion tunnel completed and carrying the water of the river, the contractor tackled the main job of building the embankment for the dam. He delivered the gravel and the sand from borrow pits 1,600 ft. away in cars hauled by dinkey locomotives operating on wooden trestles across the dam

site. Sand and gravel dumped from the cars on these trestles was sluiced to place with hydraulic giants. A puddled core at the center made the structure impervious. As the construction crew built up the fill, they set up new wooden trestles at higher elevations and repeated the operations already described. A combination of scraping and sluicing was effective in bringing rock fill near the crest of the dam down



SLUICING MATERIAL into place for main embankment. As fill rises, new trestles are built at higher elevations to carry trains of side-dump cars delivering gravel and sand from borrow pits.



to a 2:1 slope. The method involved the use of a steam hoisting engine on skids and a cable to a dump car on the trestle.

The mixing plant, with a 1-yd. machine, delivered 25,000 cu.yd. of concrete for the spillway lining, gate chambers, and other structures. A "baby buggy," illustrated on p. 26, consisting of a mobile timber frame-

work, helped speed up concreting progress on the spillway lining. The mixture arrived in 1-yd. cars which were raised by a hoist on the buggy to deliver into chutes leading to the forms. This mobile rig left an open track along the spillway floor.

Concrete placed at other points on the job involved the use of an improvised cableway operated from the



DRAGLINE BUCKET revamped by Superintendent F. T. Crowe for operation with slack-line cableway. Used for excavating cutoff trench.

MOVABLE JUMBO handles forms for concreting the 30-ft. horseshoe-shaped diversion tunnel. Concrete is delivered by cars on track at top of jumbo.

drums of an ordinary steam shovel, instead of a regular cableway hoist. This was one of the kinks that Superintendent Crowe developed on the Guernsey dam project (see *Construction Methods*, February, 1927, p. 20).

For the U. S. Bureau of Reclamation, R. F. Walter, chief engineer, and F. F. Smith, construction engineer, supervised the job.



New Conditions

now make it easier for you to win one of the three prizes in our

MONTHLY PHOTOGRAPHIC CONTEST

Read the instructions on p. 23 and then send in your entries today.

TRASH RACK at power intake and entrance to diversion tunnel.

DON'TS

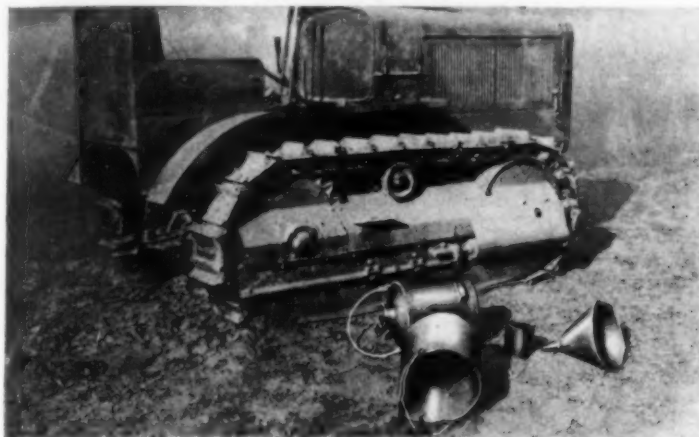
for Tractor Operators

CONSTRUCTION equipment, these days, costs real money. Its earning capacity depends on its ability to keep working, day in and day out. When it's idle, on account

of breakdowns and repairs, it's a total loss.

Here are a few hints, in picture form, for the tractor operator who wants to eliminate lost time on the

job. Every incident pictured has actually occurred, for the series is based on the field experiences of the Caterpillar Tractor Company's service men.



FUEL AND OIL CONTAINERS that are allowed to lie in the dirt introduce much grit into the bearings



A DIRT-COVERED oil gage on a tractor cannot be watched by the man who runs the machine.



LIGHTED LANTERNS and cigarettes are not the best companions when filling the fuel tank.



IN COLD WEATHER always drain the radiator when work stops or use anti-freeze compound.



THE INSTRUCTION BOOK is made to read. It tells how to avoid many operating difficulties.



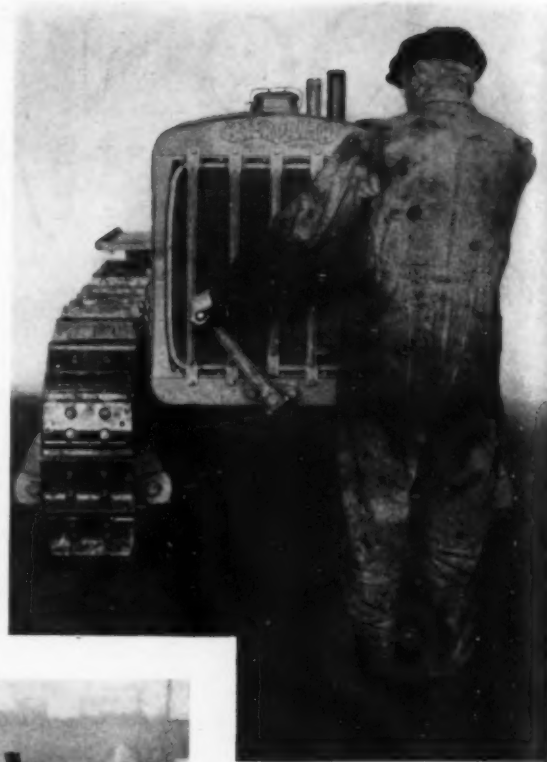
A RADIATOR, filled with straw or trash, cannot function properly to keep the tractor running.



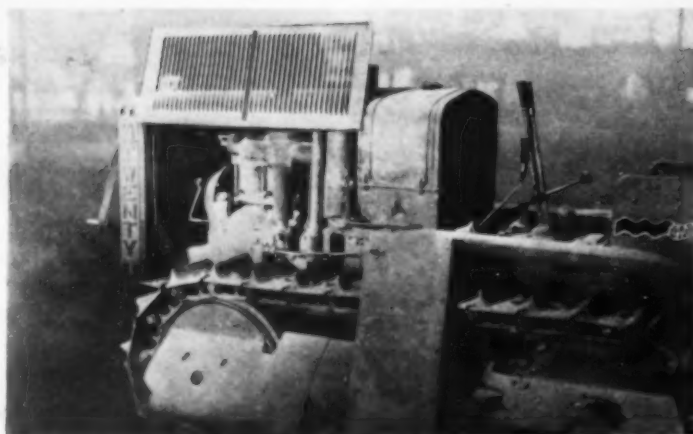
WRONG — With faulty impulse starter or dirty distributor this stance for cranking may cause backfire and give the man a broken arm.

DON'TS for Tractor Operators

(Continued)



RIGHT — Standing this way the operator can crank the tractor without risk of broken bones even if it backfires.



NEVER OPEN THE CRANKCASE (above) when the air is filled with dust.

DON'T take the magneto apart, unless you are sure you know how to put it together.

KEEP bolts and nuts tight always; this will cut the repair bill.





A TREE, with an overhanging limb, makes an excellent substitute for a "sky-hook."



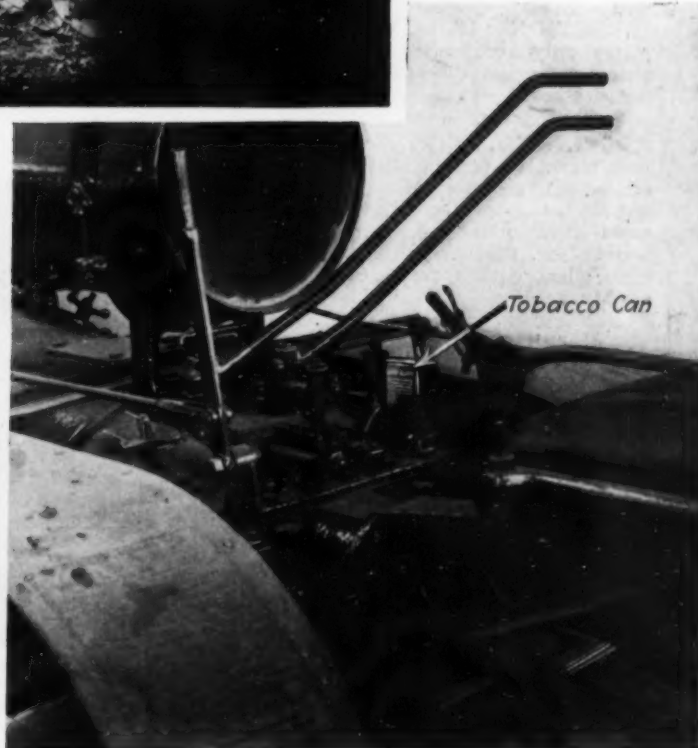
TURNING square around in soft plowed ground may cause damage to the machine.

DON'T WALK in front of the tractor, when it is in motion (*below*).

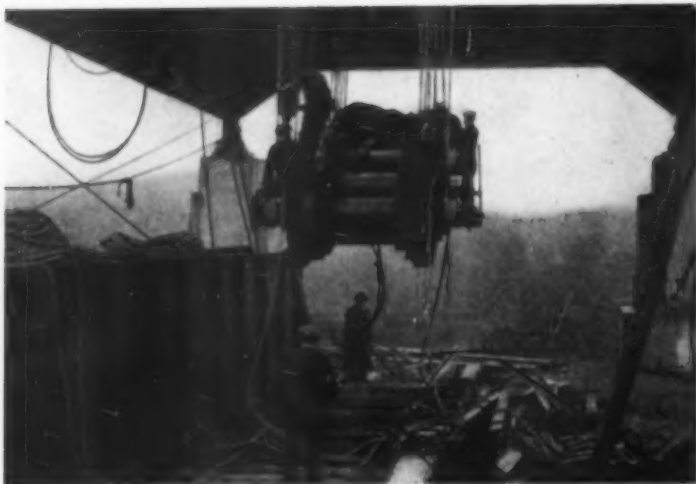


MUD should be carefully removed from around grease holes before using the grease pump.

TOBACCO TINS should not be placed so that they short-circuit the ignition line.



Tobacco Can



IT CAN BE DONE! Here's proof of the fallacy of the old theory about not being able to raise yourself by your own bootstraps. This hoist on the Outerbridge Crossing for the New York Port Authority is lifting itself to place on the bridge under its own power.



THE FLORIDA HOUSEBOAT IDEA adapted to construction purposes in building the Tamiami highway through the Everglades. The bunkhouse and kitchen above the machine solve the living problem for the construction crew.

JOB ODDITIES

A Monthly Page of Unusual Features of Construction

If there's anything odd on your work, mail the Editor a snapshot of it.



©P & A

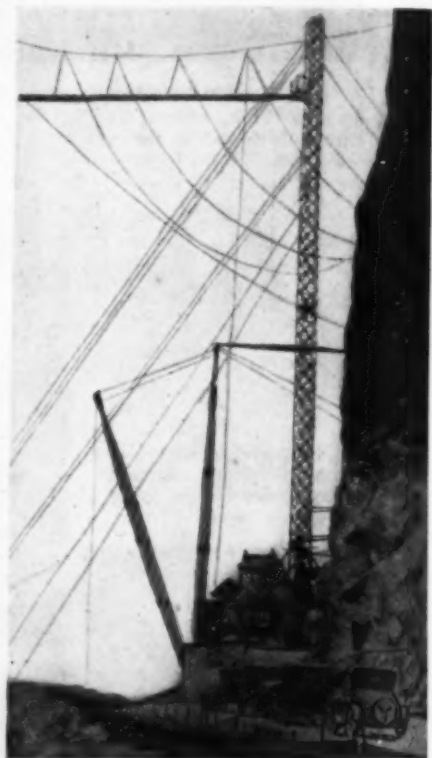
DIRECTION MONUMENT replaces ugly signs and billboards in showing tourists the way to a Los Angeles hotel.

ROBBING DAVY JONES' LOCKER with an orange-peel bucket which recovers sunken "treasure" of lead pigs which went to bottom of East River, New York, when scow foundered. A hose bath washes the mud from the "pieces of eight," before they are stacked for re-shipment.



©International

SKYSCRAPER CHUTING TOWER delivered concrete for the Horse Mesa dam in Arizona (described in last month's issue). It's an Insley outfit, 340 ft. high, perched on the canyon side with its top 700 ft. above stream bed. It feeds about 1,000 ft. of inclined chute.



©Keystone

MAKING THE GRADE by means of a spiral roadway solved the problem of an otherwise lengthy approach to this bridge in Hastings, Minn.

Present and Accounted For -

A Page of Personalities From the Field of Engineering and Construction



©International

EDWARD FAY, 65-year old master riveter of New York City, who has completed half a century of construction work since he began as a 15-year old apprentice. His record of rivets driven runs into the millions. He has helped build such notable structures as the Brooklyn Bridge, Williamsburg Bridge, Trinity building and scores of other New York skyscrapers. He is employed by the George A. Fuller Co. of New York.

H. B. RICHARDS (standing, at extreme right), superintendent for the John W. Cowper Co., contractors, of Buffalo, N. Y., and a few of his construction crew (below) which won the Accident Prevention Award of the Associated Industries of New York State in competition with 634 firms. In building a rail mill at the Lackawanna plant of the Bethlehem Steel Co., Superintendent Richards hung up a perfect safety record for the Cowper organization—not a single day of lost time from accident or injury on the job.



J. F. DEXTER, president, Dexter Construction Co., Dallas, Texas, in front of the airplane which he operates regularly to carry him to points where contracts are advertised or under way. "I have found it advantageous," Mr. Dexter informs *Construction Methods*, "to use an airplane in making inspections of contracts and in supervising jobs. An airplane making an average speed of 100 miles per hour allows me to visit almost any point in the state in a day's time."



KOSS CONSTRUCTION COMPANY group in a South American setting far from company headquarters in Des Moines, Ia. The picture was taken in Peru where the company is building concrete roads and other structures. Left to right, the men are: Hugh Onstott,

grade foreman; John Steinhauer, mixer and road machinery engineer; Andres Parras Caceres, secretary and interpreter to President George W. Koss; Charles Mallory, concrete foreman; W. R. Ballard, resident manager; and H. M. Hedges, civil engineer.

A Railway Bridge in the F

Building concrete and steel
new line of Canadian
River on way to Hu



THE construction of the new line of the Canadian National Railway through northern Manitoba is being followed with keen interest, not only by Canadians, but by all others who are familiar with the project. If the new railroad succeeds in its purpose, it will provide an outlet to Hudson Bay for the great wheat sections of Canada.

What is probably the most northern steel and concrete bridge in Canada is on the new line about 70 miles from Port Nelson. This bridge, which will carry the railroad over the Limestone River, is about 430 ft. in length. It consists of four piers and two abutments supporting five girder spans, three of which are 90 ft. in length, the others measuring 80 ft.

THE STEEL will be supported on four concrete piers and two abutments. The forms had not been removed from one of the piers when these two photographs were taken.



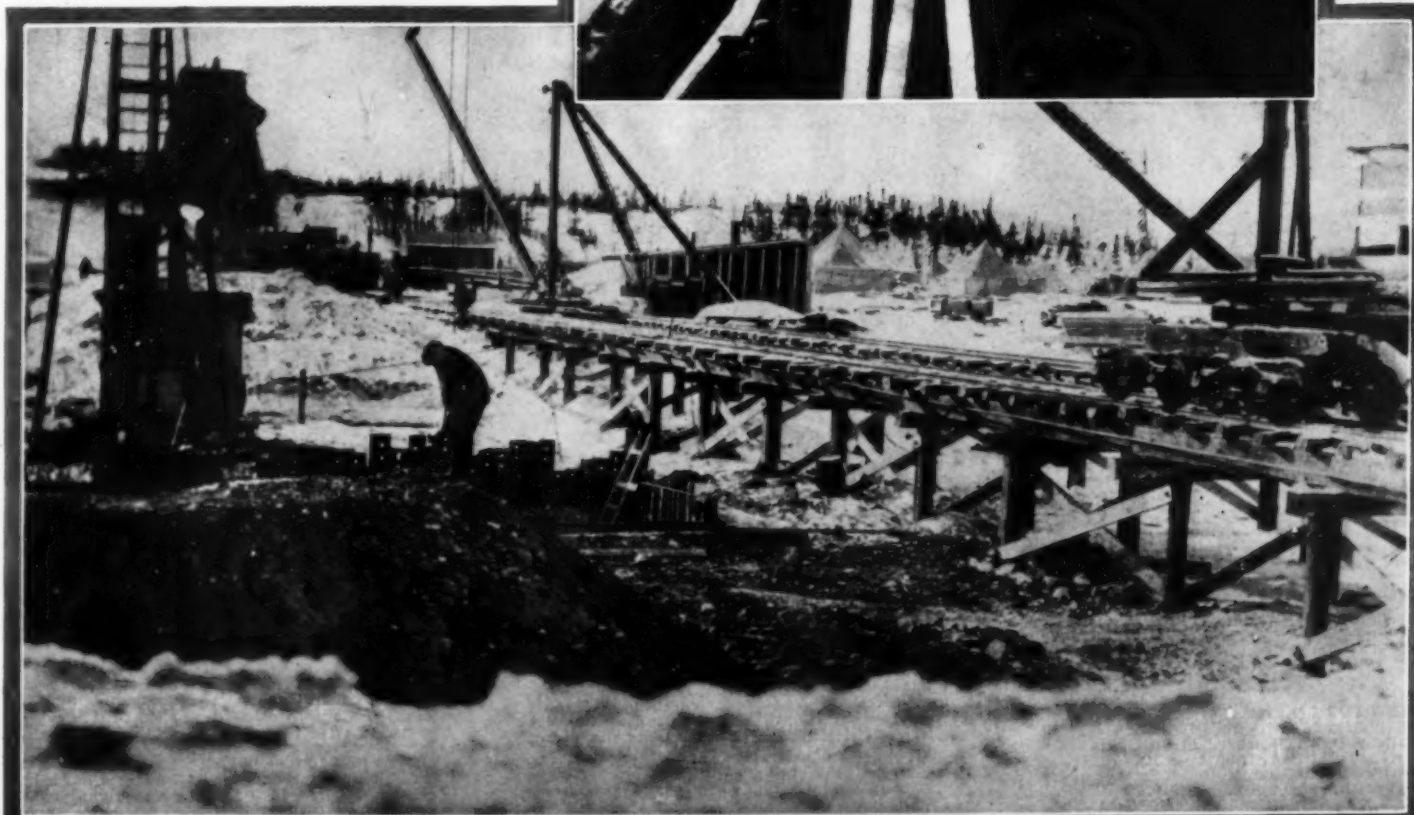
ne Far North

steel structures which will carry
Canadian National across Limestone
Hudson Bay

The pictures which accompany this article were sent to *Construction Methods* by C. V. Hope, resident engineer on the job for the Canadian National Railway. They show the bridge in various stages of construction and give a good picture of the conditions under which the work must be carried on in northern Canada. In two of the pictures, the tents of the construction camp may be seen. During much of the time when the bridge was under way the ground was covered by snow. Needless to say, this materially added to the difficulties of the job.

The four photographs give a good idea of the design of the concrete part of the structure on which the erection of the steel superstructure will be completed this year.

ONE OF THE CONCRETE ABUTMENTS is shown at the right. Below steel sheeting is being driven in frozen ground. Much of the work was carried on during the winter.



NEW EQUIPMENT ON THE JOB

New Shovel Performs on Rush Street Job

The shovel shown in the accompanying photograph is one of the new Massillon 35 Gas models being manufac-



tured by the Byers Machine Company of Ravenna, Ohio. It is owned by the Garaux Brothers Company of Canton, Ohio, and is shown doing a rush job of removing 7,000 sq. yd. of old brick paving for that city.

Diesel Engines for Small Mixers

How to prevent the company fuel supply from being diverted to the gas tanks of private flivvers is a problem

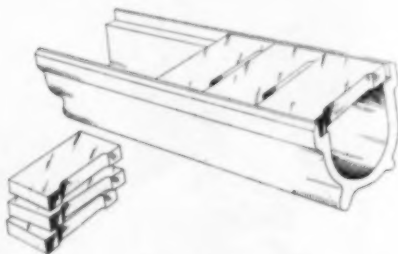


that has puzzled more than one contractor. An unexpected solution of this difficulty was made recently by James J. Verluise, engineer in charge of waterworks construction for the city

of Chicago, who conceived the idea of using Diesel engines on small mixers, and as a test job, a Marsh-Capron 7-S portable mixer was purchased without power plant and fitted in the city shops with a 6-hp. one-cylinder Hill Diesel engine. Since this engine operates on fuel oil or kerosene, the problem of the stolen gasoline has practically been solved, and what appear to be decided advantages of simplicity of operation have been obtained.

Underdrain Tile for Trickling Filters

Engineers and contractors engaged in sewage treatment plant design and construction will be interested in the new underdrain tile manufactured by



the W. S. Dickey Clay Mfg. Co., of Kansas City, Mo. The accompanying sketch shows the channel of this tile and the six covers required to fill in each 2-ft. length. As may be noted in the three covers in position, slotted apertures provide passages for the free movement of liquid down into the channel, and of air up from the channel into the filtering mass. The end opening is large enough for the insertion of fire hose for flushing.

This tile makes it possible to lay the channels on the floor, to space, adjust, align and to make sure of all details with closest accuracy before concrete material is poured between the channels and the whole is set and fixed in permanent form. It can be laid over a filter floor made of concrete or a floor of solid clay or some other solid soil of similar imperviousness.

An Electric Hoist for Speedy Jobs

When it comes to placing steel several stories up or running the cage on a concrete tower, much time is saved by speed. With this in mind, the American Hoist & Derrick Company

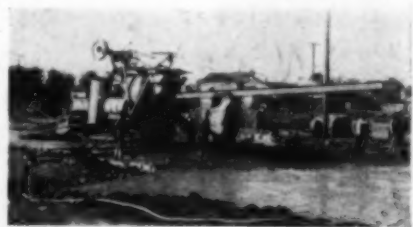


of St. Paul, Minn., has placed on the market a new high-speed, electric hoist which, it claims, is equally suited to steel erection service, concrete tower work or general contractors' use.

"Mechanical Man" Reduces Hand Labor

In a day's run the operator of a Rex paver is relieved of more than 2,000 manual operations if his machine is equipped with a "Mechanical Man," one of the outstanding developments of the 1928 Rex paver. This is the claim made by the Chain Belt Company of Milwaukee, manufacturers of the machine.

The result is accomplished by a



simple mechanism. Three cams and three levers connected to the skip hoist, the water valves and the discharge chute, perform all operations. If desired, however, these operations can be performed independently of the "Mechanical Man."

McGRAW-HILL PUBLISHING COMPANY, INC., Tenth Ave. at 36th St., New York, N. Y.

JAMES H. McGRAW, President
JAMES H. McGRAW, Jr., Vice-Pres. and Treas.
MALCOLM MUIR, Vice-President
EDWARD J. MEHREN, Vice-President
MASON BRITTON, Vice-President
EDGAR KOBAK, Vice-President
C. H. THOMPSON, Secretary

NEW YORK District Office, 285 Madison Ave.
WASHINGTON, Colorado Building
CHICAGO, 7 S. Dearborn Street
PHILADELPHIA, 1600 Arch St.
CLEVELAND, Guardian Building
ST. LOUIS, Bell Telephone Building
SAN FRANCISCO, 883 Mission Street
LONDON, 6 Bouverie St., London, E. C. 4

Cable Address: "Machinist, N. Y."

Publishers of

Engineering News-Record American Machinist
Power Chemical and Metallurgical Engineering
Coal Age Engineering and Mining Journal
Radio Retailing Ingenieria Internacional
Bus Transportation Electric Railway Journal
Electrical World Electrical Merchandising

Construction Methods

Electrical West

(Published in San Francisco)

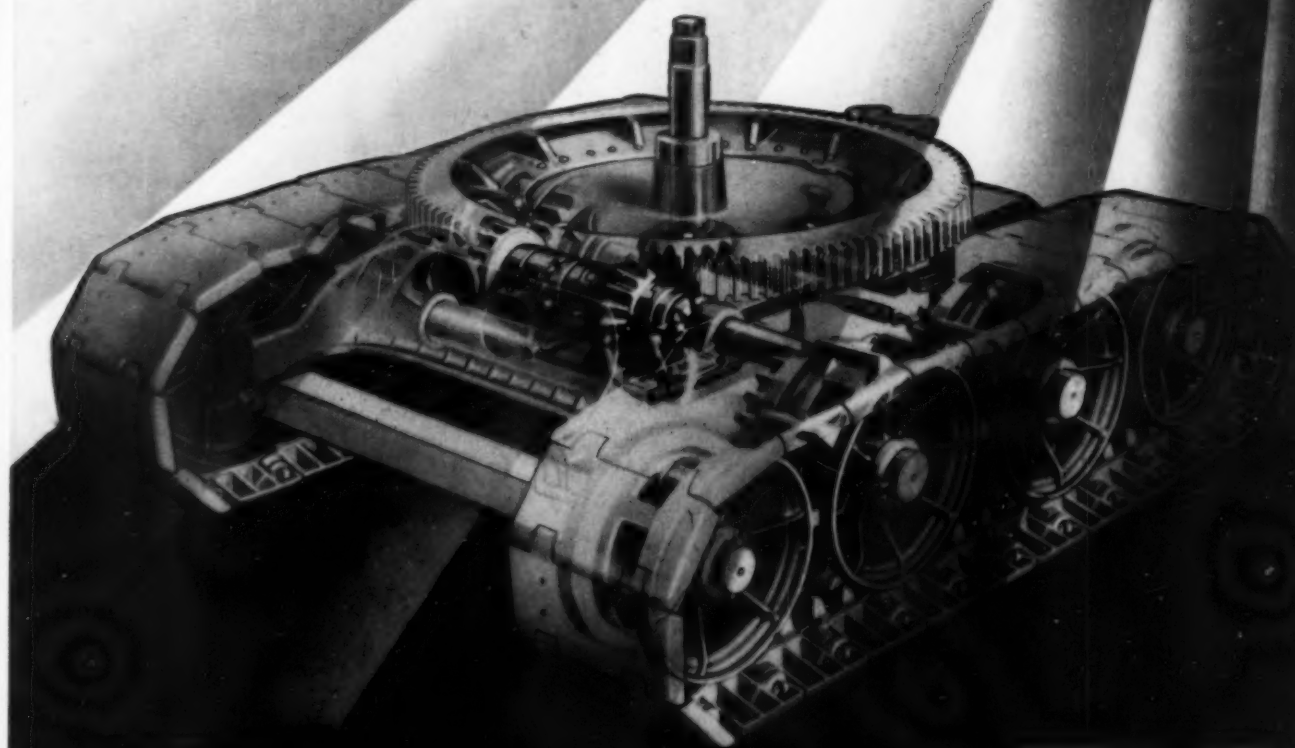
American Machinist—European Edition
(Published in London)

Subscription is two years for \$1 to the United States, Canada, Mexico, Alaska, Hawaii, the Philippines, Porto Rico, Canal Zone, Cuba, Honduras, Nicaragua, Peru, Colombia, Bolivia, Chile, Dominican Republic, Panama, El Salvador, Argentina, Brazil, Spain, Uruguay, Costa Rica, Ecuador, Guatemala, Haiti and Paraguay. Extra postage to other countries, \$1 (total \$2 or 9s. 4d.) for two years. Single copy, 5 cents.

Change of Address—When change of address is ordered the new and the old address must be given. Printed in U. S. A. Copyright, 1928 by McGraw-Hill Publishing Company, Inc. Published monthly.

April, 1928—CONSTRUCTION METHODS

The **NON-STOP**
Center-Drive
TRUCK!



THE W

THEW

PRACTICAL, sturdy construction combined with the center drive in truck and superstructure of Lorain machines is your assurance of profitable operation.

THE THEW SHOVEL CO., Lorain, O.
Shovels • Cranes • Draglines • Back-Diggers
Gasoline, Steam or Electric Powered



**"Digs much more than anticipated—
would not consider any other"**

and after using 3 Gas +
Air BUCYRUS-ERIES,
William C. Horn Co.,
of Lock Haven, Pa., —



bought another Gas+Air (their 4th)

These well known contractors write: "Our Gas+Air BUCYRUS-ERIES are being used on State Highway work and their output is much greater than we anticipated—our main trouble is to haul away the material."

"The way these Gas+Air machines handle rock is almost unbelievable. We would not consider any other make of shovel—and highly recommend Gas+Air BUCYRUS-ERIES for hard use. We now have four, the last two ordered by telephone." Making a total of eight BUCYRUS-ERIE Machines they have owned—in addition to others rented.

A Union of Strength

"BUCYRUS" and "ERIE"—each the most successful manufacturer in its particular field—consolidated Jan. 1, 1928. The unmatched resources of BUCYRUS-ERIE assure the buyer of Unequalled Value, More Efficient Machines, Permanence of the Manufacturer, and a More Complete Field Service.

Operator has the complete control so important on rock work—

Many times on this Horn contract a big boulder would start tumbling down the bank, and only the operator's complete control over the dipper—with crowding and swinging engines always in gear for instant action—enabled him to stave off a smash.

But of course the feature of the BUCYRUS-ERIE Gas+Air that these successful contractors like best is the *Bigger Production*.

The Repeat Orders for Gas+Air BUCYRUS-ERIES tell the story!

BUCYRUS-ERIE COMPANY

South Milwaukee, Wis.

Erie, Pa.

Evansville, Ind.

Branch Offices:

Boston
New York
Philadelphia
Atlanta

Birmingham
Pittsburgh
Buffalo

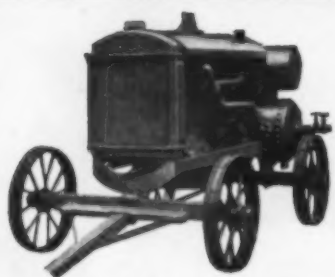
Detroit
Chicago
San Francisco

**BUCYRUS
ERIE**

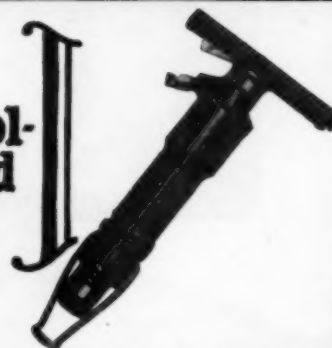
Here's Real Performance!



*Look at these big chunks
of reinforced concrete*



THOR "SIX" Compressor Demol- ishing Reinforced Concrete Bridge



For cutting concrete as well as costs, the THOR 6 Compressor and Paving Breaker is an unbeatable combination.

The THOR 6 is the only compressor with a Super-Charger, which enables it by actual test, to deliver 26% more air than any other compressor of the same size. The Rix Super-Charger is an exclusive, patented feature that utilizes the idle or downward stroke of the piston to compress the additional air the THOR delivers.

Another feature that is attracting unusual attention is the unit-type construction of the THOR. Both engine and compressor are mounted on a common crank case, eliminating gears, clutches and couplings. The advan-

tages of this "direct-connected" design are tremendous and it is responsible for the low upkeep cost every THOR user experiences.

THOR Paving Breakers match the compressor in performance. They are powerful, exceptionally speedy and rugged. THE MOST IMPORTANT FEATURE, HOWEVER, IS THEIR LACK OF VIBRATION. Your men will appreciate this distinctive feature by producing more work.

By all means investigate THOR equipment. You have everything to gain and nothing to lose. And the money you will save will be well worth the time spent. Write for Bulletin 103.

THE THOR LIGHT PAVING BREAKER IS THE FASTEST ON THE MARKET

INDEPENDENT PNEUMATIC TOOL CO.

PNEUMATIC TOOLS 600 W. Jackson Blvd. CHICAGO ELECTRIC TOOLS

FACTORY AURORA, ILL.

Eastern Office 1463 Broadway, New York



BRANCHES THE WORLD OVER

London Office 40 Broadway, Westminster, London

60%

of the purchasers of
the 1st 100 Northwests
now own two or more! For
the modern Northwest with its
profitable improvements, this is an
endorsement that can be equalled
by no other testimonial!

**NORTHWEST
ENGINEERING COMPANY**

*The world's largest exclusive builders
of gasoline and electric powered shovels,
cranes and draglines*

1723 Steger Building
28 E. Jackson Blvd.
Chicago, Ill., U. S. A.



1 1/2
3/4 **1 YD.**
1 1/4

NORTHWEST

CRANES · SHOVELS **CONVERTIBLE** and DRAGLINES

Gasoline and Electric

Le Roi — power unapproached



VALUE! It is the last and lasting impression. Particularly on construction machinery—the power that gives it *action*. The power upon which contractors depend for profit.... To distinguish itself as a leader the Le Roi Engine boasts of a record of unbelievably low maintenance cost. It is preferred because it performs — the popular choice of most contractors.

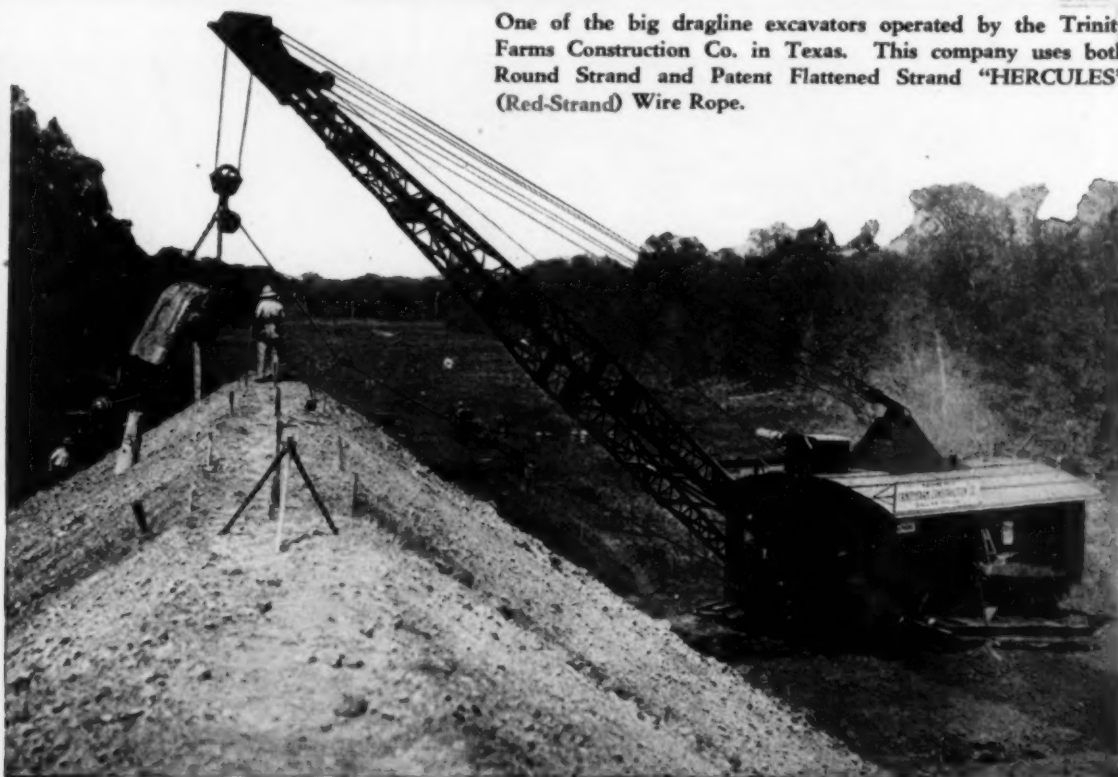
Le Roi Company, Milwaukee, Wis.

LE ROI ENGINES

3 to 160 HORSE POWER

Le Roi's operating costs are the lowest per day and per year.

**ENGINE BUILDERS
*only!***



One of the big dragline excavators operated by the Trinity Farms Construction Co. in Texas. This company uses both Round Strand and Patent Flattened Strand "HERCULES" (Red-Strand) Wire Rope.

Strength Plus Is Necessary

The wire rope that is used on material-handling equipment must be strong—but strength alone is not sufficient if both safe and economical results are to be had.

"HERCULES" (Red-Strand) Wire Rope has the strength to handle heavy loads plus the necessary toughness and endurance to withstand the wear and tear of friction, bending and jerking. It is made of acid open-hearth steel wire, and every wire is rigidly tested by us to make sure that it meets our exacting requirements.

"HERCULES" (Red-Strand) Wire Rope is made in both Round Strand and Patent Flattened Strand constructions in order to meet all working conditions. Tell us how you use wire rope and we shall be glad to suggest the right construction for best results.

The Wire Rope with the Service Record

Made Only by **A. Leschen & Sons Rope Co.** Established 1857

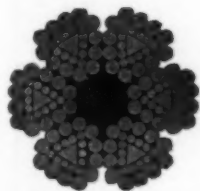
5909 Kennerly Avenue
ST. LOUIS

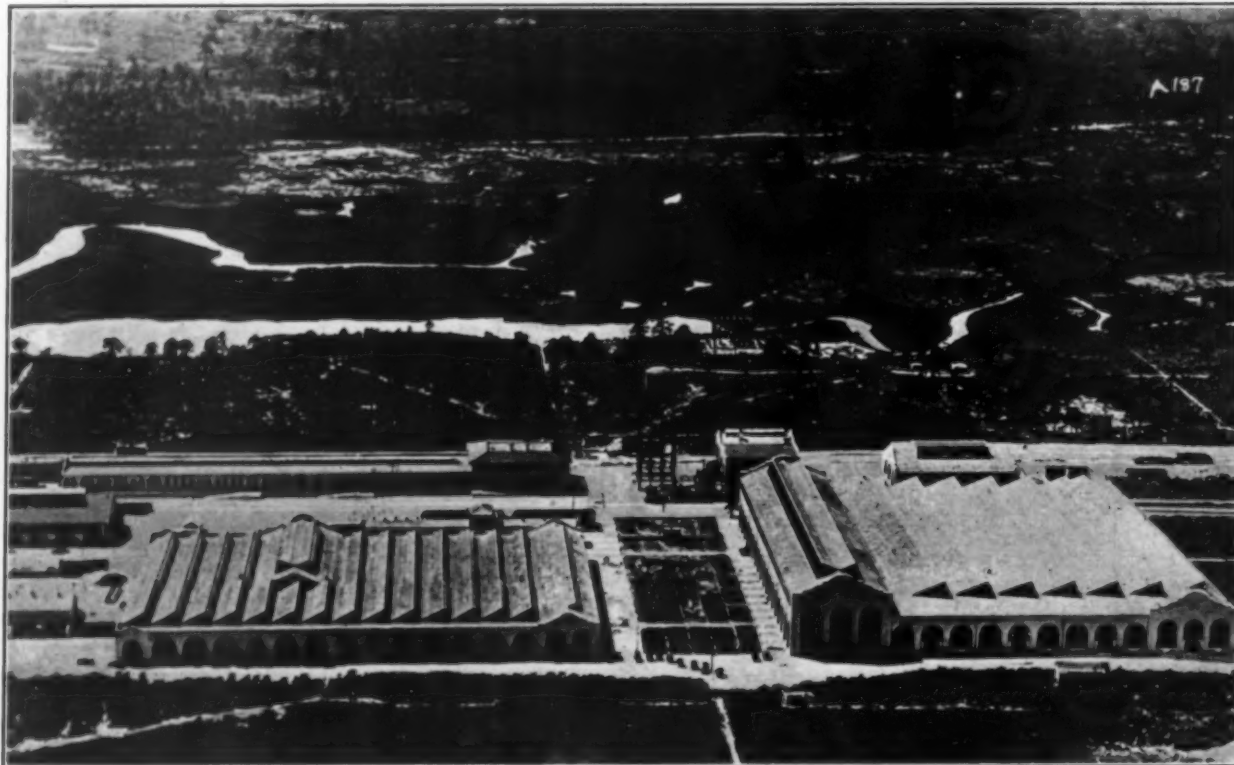
New York

Chicago

Denver

San Francisco





Aerial View of Miller Shops

St. Augustine, Florida

*Constructed for
The Florida East Coast Railway
by The Foundation Company*

The Shops of The Florida East Coast Railway Company at St. Augustine, known as the Miller Shops, were constructed by The Foundation Company. They are of Spanish type of design to harmonize with the semi-tropical location. The Shops comprise a locomotive erecting and machine shop, coach shop, freight car repair shop, transfer table, together with the auxiliary storehouses, offices and service buildings. The complete project included fifteen miles of track laying and other installations.

THE FOUNDATION COMPANY CITY OF NEW YORK

*Office Buildings
Industrial Plants
Warehouses
Railroads and Terminals
Foundations and Underpinning
Filtration and Sewage Plants*

**ATLANTA
PITTSBURGH
CHICAGO
SAN FRANCISCO**

**MONTREAL
MEXICO CITY
CARTAGENA, COLOMBIA
LIMA, PERU**

**LONDON, ENGLAND
PARIS, FRANCE
BRUSSELS, BELGIUM
TOKYO, JAPAN**

*Hydro-Electric Developments
Power Houses
Highways
River and Harbor Developments
Bridges and Bridge Piers
Mine Shafts and Tunnels*

BUILDERS OF SUPERSTRUCTURES AS WELL AS SUBSTRUCTURES

Remarkable! You'll Say

That's what many a man has said after seeing the Wiley-Whirley in action—or after reading our new and different catalog.

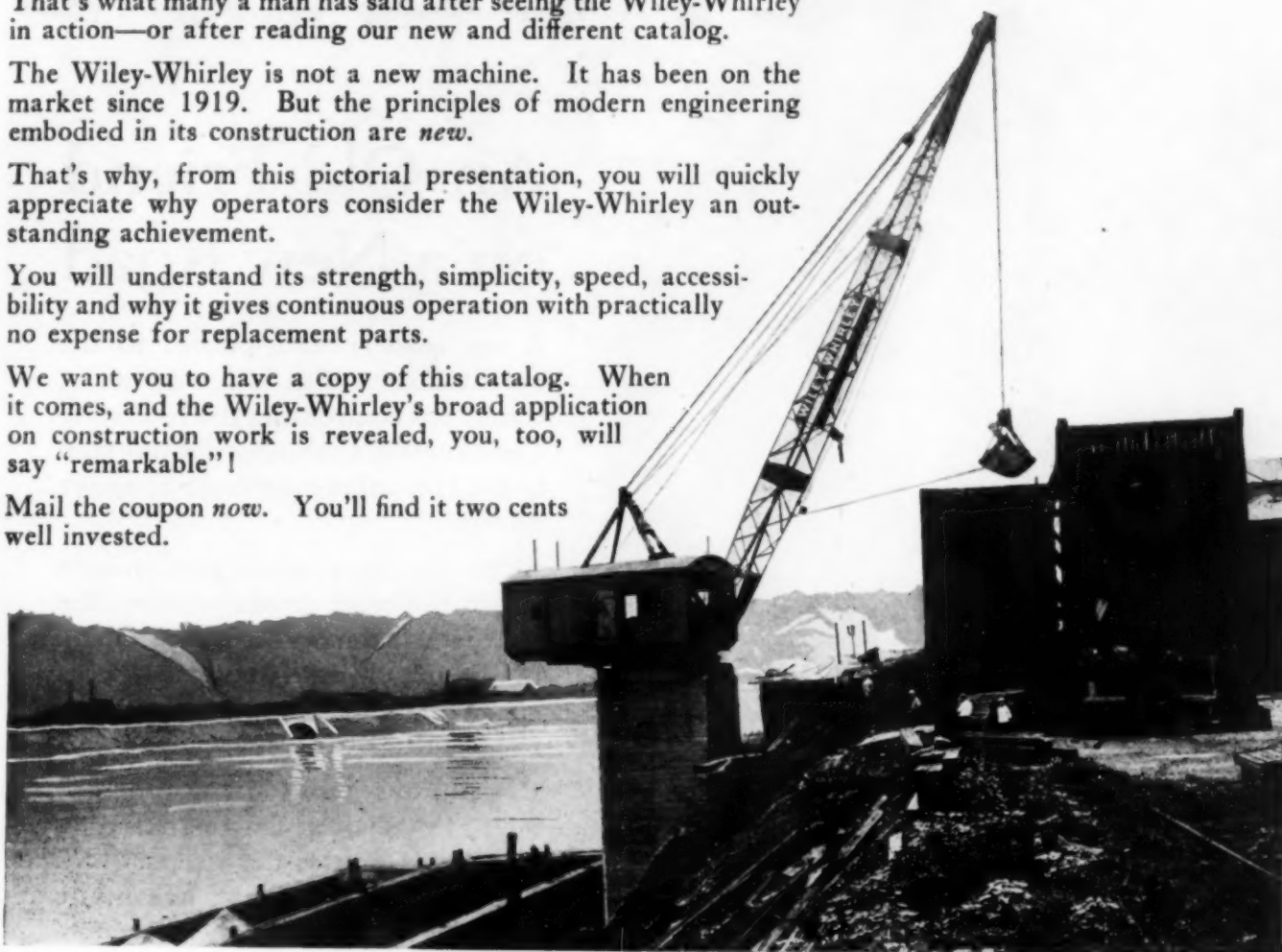
The Wiley-Whirley is not a new machine. It has been on the market since 1919. But the principles of modern engineering embodied in its construction are *new*.

That's why, from this pictorial presentation, you will quickly appreciate why operators consider the Wiley-Whirley an outstanding achievement.

You will understand its strength, simplicity, speed, accessibility and why it gives continuous operation with practically no expense for replacement parts.

We want you to have a copy of this catalog. When it comes, and the Wiley-Whirley's broad application on construction work is revealed, you, too, will say "remarkable"!

Mail the coupon *now*. You'll find it two cents well invested.



*Send for Your Copy
of this Novel Catalog*

The Dayton Whirley Co.
DAYTON, OHIO



The Dayton-Whirley Co.
Dayton, Ohio

Please send your new, unique catalog to:
.....
.....
.....

Hercules

An Old Friend on a New Road

A new road is being pushed to the mountain-top. But the very worst conditions confronting the Interstate Construction Company did not stop their Hercules-powered Speeder Shovel.

To assure satisfactory performance under the most severe service, the Speeder Machinery Corporation and many other equipment makers assign *all* the power responsibility to Hercules Engines.

Continuous heavy duty does not affect the smooth flow of Hercules Power. Hercules design provides rugged strength that has made Hercules endurance known throughout the world.

Equipment powered with Hercules Engines does so many jobs at record low costs because Hercules can most nearly meet power needs.

The four- or six-cylinder Hercules Engine selected after characteristically thorough Hercules cooperation gives the sort of satisfaction that adds to the good reputation of any builder and to the profits of any user.

HERCULES MOTORS CORPORATION
CANTON, OHIO, U. S. A.

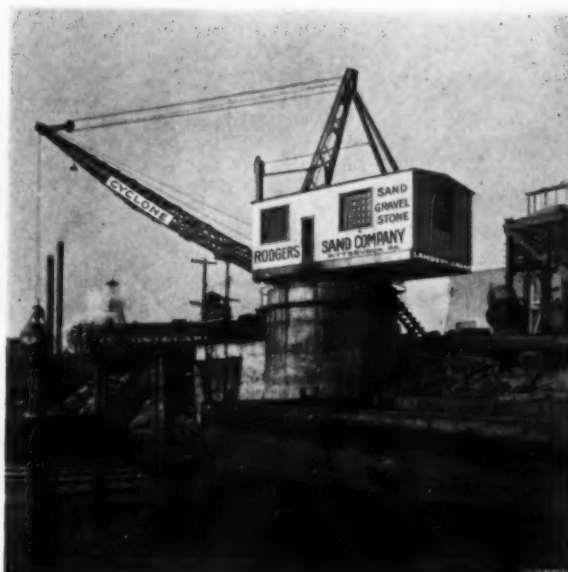


Power!
Speed!
LAMBERT
CYCLONE
Capacity!
CRANES
Reliability!

ASPHALT
PLANTS

BRICK
MAN'FRS

COAL
HANDLING



BUILDING
MATERIAL
DEALERS

ROAD
CONTRACTORS

CONSTRUCTORS

This is the LAMBERT CYCLONE CRANE you hear about

The RODGERS SAND CO., of Pittsburgh, have installed an 18 A and CERTAINLY are PLEASED with the RESULTS obtained and the SPEED with which it OPERATES and the LOW MAINTENANCE and RUNNING COST.

This 18 A with capacity of $2\frac{1}{2}$ or 3 cu.yd. Clamshell Bucket, on 85 ft. Boom, must handle all types of materials during any day's work, high boom, or low boom, to 85 ft. Radius, it is all the same to the LAMBERT CYCLONE CRANE.

**MECHANICAL AND STRUCTURAL PARTS ALL MADE, ASSEMBLED
AND TESTED AT OUR PLANT**

FURNISHED FOR STATIONARY BASE OR WITH TRAVELLING BASE

Designed and Built by

LAMBERT HOISTING ENGINE COMPANY

117 POINIER ST.

Main Office and Works

NEWARK, N. J.

"Champion" Good Roads



Write
for
Catalog

"Black Top" roads are increasing in demand.

"Black Top" work demands equipment.

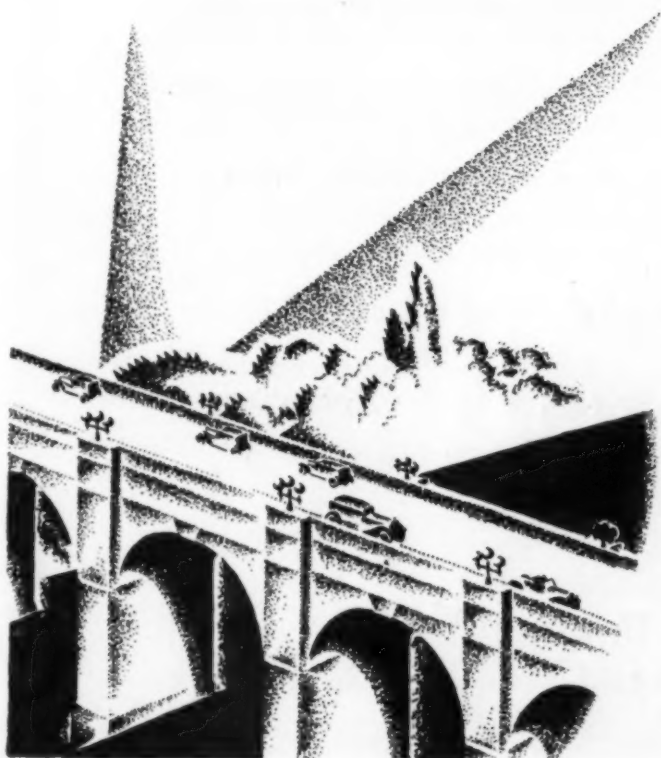
"Black Top" is best done with a
"Good Roads Champion"

A "Good Roads" Champion Oil Distributor
can be furnished with either power take-off or separate power
unit, and still be especially designed for your truck.



**THE GOOD ROADS
MACHINERY CO., Inc.
Kennett Square, Pa.**

LEHIGH CEMENT

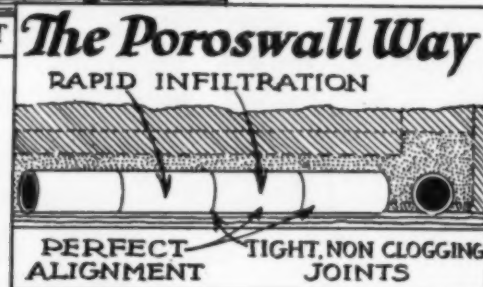
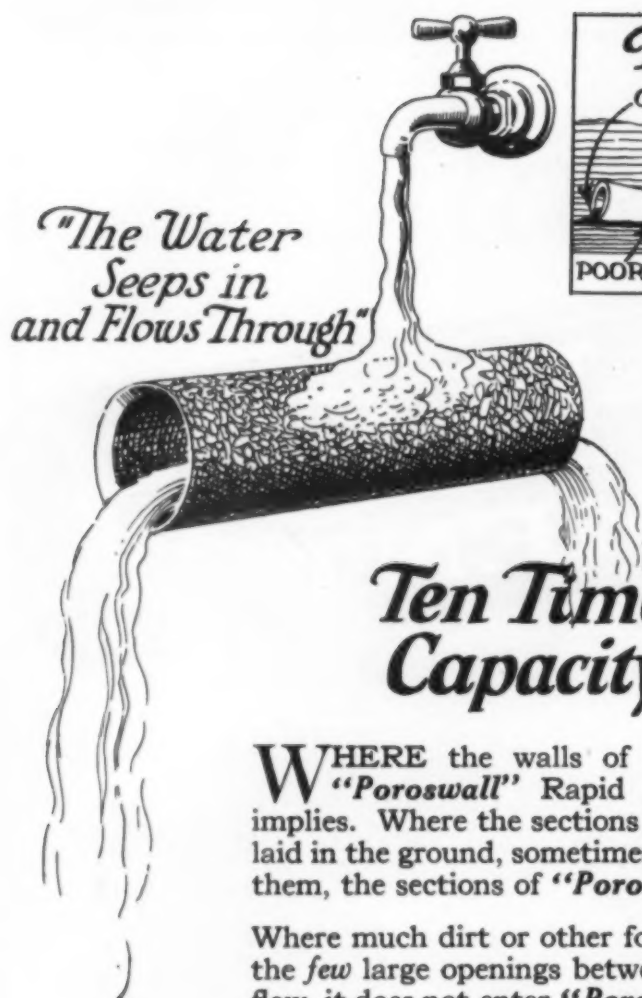


SERVICE

Lehigh has mills from coast to coast and offices in important cities throughout the United States. "Lehigh" means dependability.

LEHIGH PORTLAND CEMENT COMPANY

Allentown, Pa. New York, N. Y. Birmingham, Ala.
Chicago, Ill. Spokane, Wash.



Ten Times the Drainage Capacity of Other Pipes

WHERE the walls of other drain pipes are solid, those of "Poroswall" Rapid Drain Pipe are porous, as its name implies. Where the sections of other drain pipes are separated, when laid in the ground, sometimes inches apart so that the water can enter them, the sections of "Poroswall" are tightly jointed together.

Where much dirt or other foreign matter enters other drain pipes at the few large openings between sections, to remain there and impede flow, it does not enter "Poroswall" with the water at the thousands of small openings throughout its entire wall-area because these are very small and water-velocity at them is low.

The concave and convex ends not only insure tight joints but perfect alignment and ideal flow-conditions. The pipe, too, is guaranteed to have in excess of 2000 pounds compressive strength per lineal foot.

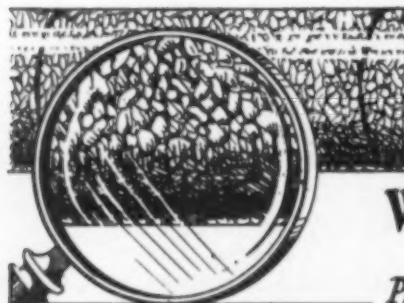
Widely used in Europe for more than twelve years. Many hundreds of successful installations in this country.

"A Foot of Drainage for Every foot of Pipe"

*For Golf Courses, Aviation and Athletic Fields,
Sewer Under-Drains, Sewage Disposal Plants,
Highways, Swamps and Cellars, etc.*

**WALKER
POROSWALL
RAPID DRAIN PIPE**

*Send Coupon below for sample
Pipe Section & Booklet*



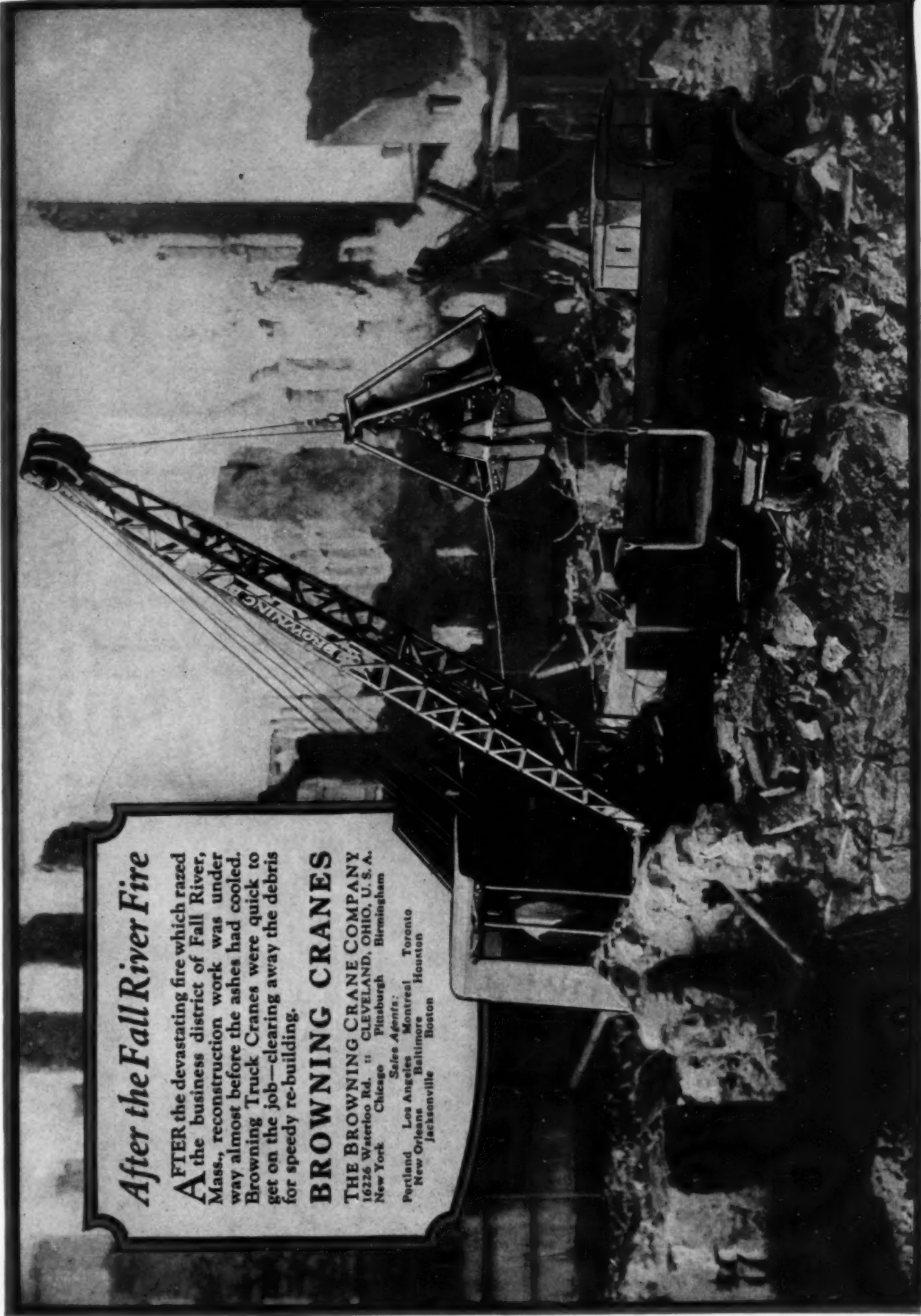
Walker Cement Products, Inc.
Little Ferry, N.J.
Plants at Little Ferry, N.J. & Baldwin, L.I., N.Y.

Please Print!

[Name]

[Address]

C.M.



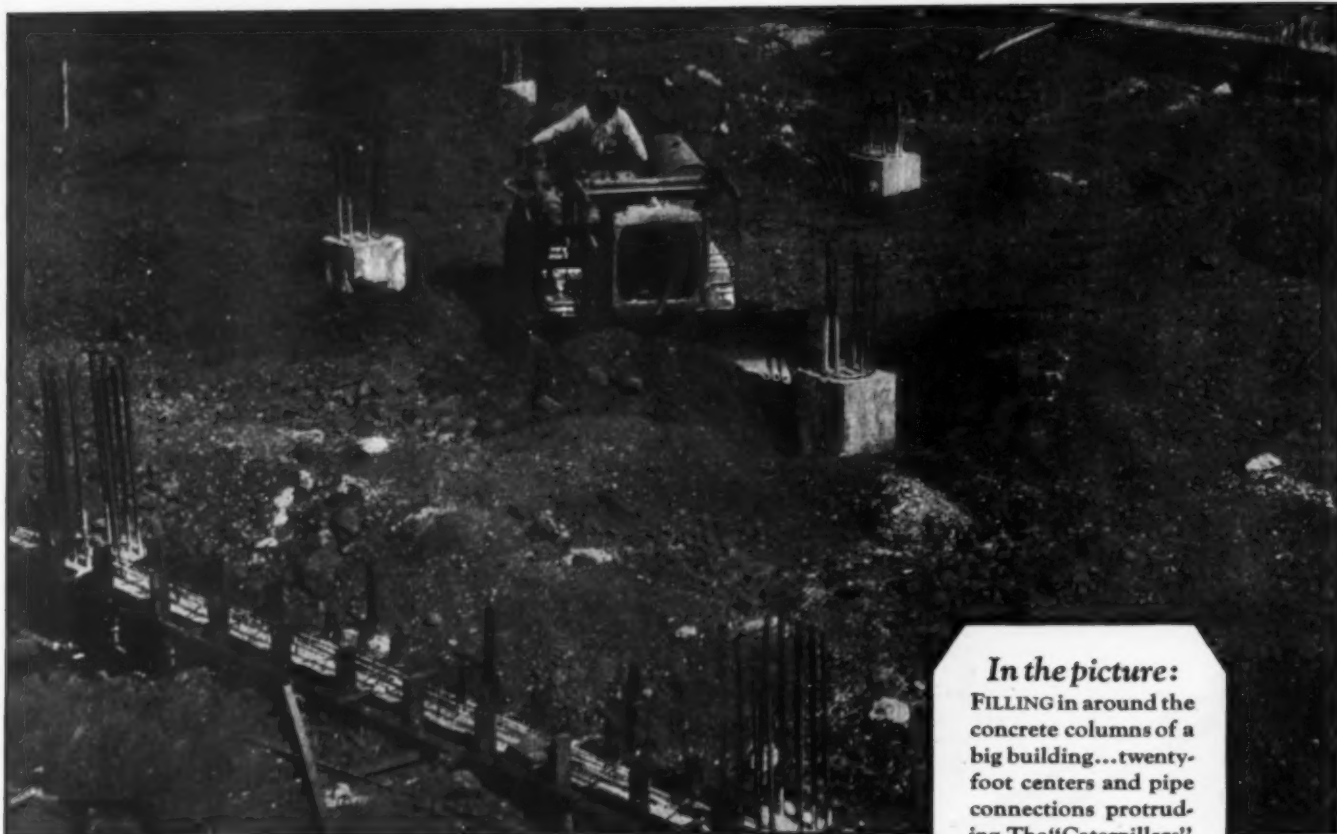
After the Fall River Fire

AFTER the devastating fire which razed the business district of Fall River, Mass., reconstruction work was under way almost before the ashes had cooled. Browning Truck Cranes were quick to get on the job—clearing away the debris for speedy re-building.

BROWNING CRANES

THE BROWNING CRANE COMPANY
16226 Waterloo Rd. :: CLEVELAND, OHIO, U. S. A.
New York Chicago Pittsburgh Birmingham

Sales Agents:
Portland Los Angeles Montreal Toronto
New Orleans Baltimore Houston
Jacksonville Boston



In the picture:
FILLING in around the concrete columns of a big building...twenty-foot centers and pipe connections protruding. The "Caterpillars" navigated nicely in the narrow quarters...men and minutes saved.

REPLACING *the* Pick & Shovel gang

"Caterpillar" track-type tractors with bulldozer or backfiller make a profitable working partner on a multitude of jobs. Amazing economies in leveling, filling trenches, making fills, hauling earth...these "short cuts" win the contract for "Caterpillar" owners.

PRICES

SIXTY . . . \$4600
THIRTY . . \$2650
TWENTY . \$2175
F. O. B. Peoria
or San Leandro
2-TON . . . \$1675
F. O. B. Peoria

There is a
"Caterpillar" Dealer
near you.

CATERPILLAR TRACTOR CO.

Executive Offices: San Leandro, California, U. S. A.

Sales Offices and Factories:

Peoria, Illinois San Leandro, California

Distributing Warehouse: Albany, N. Y.

New York Office: 50 Church Street

Successor to

BEST C. L. Best The Holt Manufacturing Company HOLT

*1
better
quicker
cheaper*

1328

CATERPILLAR
REG. U.S. PAT. OFF.

Let it Rain!

IT WON'T GET STUCK



APRIL Showers and Mud, Expensive Planking and Jobs tied-up—then remember Universal's Motor Truck Crawler, the 8 wheel "Mud-Eating" Crawler. The details are in Bulletin No. 44 D. Ask for it. THE UNIVERSAL CRANE COMPANY
964 Swetland Bldg. • Cleveland, Ohio
"Sole Licensees for the Motor Truck Crawler for Truck Crane Mountings."

UNIVERSAL

LARGEST and ONLY EXCLUSIVE

CRANES
DRACLINES
SHOVELS
TRENCH HOES

BUILDERS of TRUCK CRANES

INSLEY MAST HOIST • CONCRETE PLACING MATERIAL HANDLING • EQUIPMENT



Excerpts From Mr. Johnson's Letter

"The corridor floors were concrete slab and the balance of the floors were concrete over metal lath and steel joist. We purchased an Insley Mast Hoist with a boom and counterweight chute, also a Material Elevator Platform. We are so well pleased with this outfit that we are writing to let you know what our experience with this plant has been.

"At first we thought that our job didn't have enough concrete to warrant such a plant but due to the attachment of your material hoist, we have found that it was a very profitable purchase. We hoisted everything necessary to erect the building with one double drum hoist and one engineer.

"We find the chuting of concrete to be a big saving over wheeling, as it eliminates all runways which are very expensive due to necessary height from the floor.

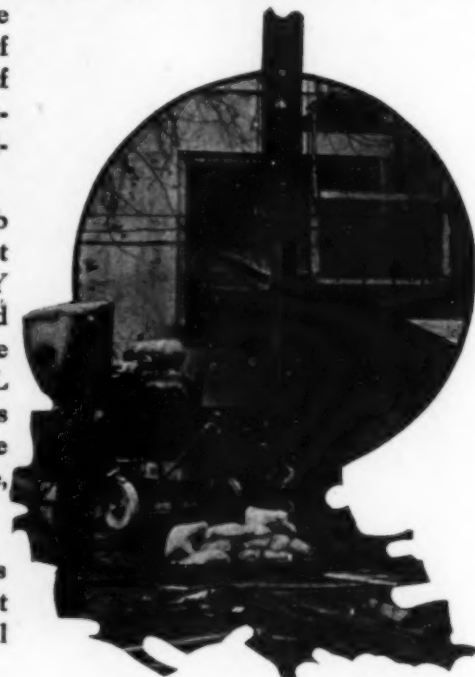
"The erection cost on our job was only \$200.00.

"In conclusion we can highly recommend this plant for any kind of a building where hoisting is necessary."

CHUTING A SMALL YARDAGE OF CONCRETE

THE Walter S. Johnson Building Co., Niagara Falls, N. Y., were awarded a contract for a hospital during the summer of 1927. The building was reinforced concrete throughout, but the floors were of light construction consisting of concrete over metal lath, as a result of which the concrete yardage of the job was small.

How best to handle this job was a problem which was met satisfactorily by an INSLEY MAST HOIST with a boom and counterweight chute, with a three wheelbarrow MATERIAL ELEVATOR. The chutes placed all the concrete and the elevator hoisted all the brick, tile, etc.



This plant was so successful that Mr. Johnson characterized it as "a very profitable purchase." Read what he says about his Mast Hoist, and remember it when you next have a big job with a small amount of concrete.

INSLEY MANUFACTURING COMPANY • Indianapolis

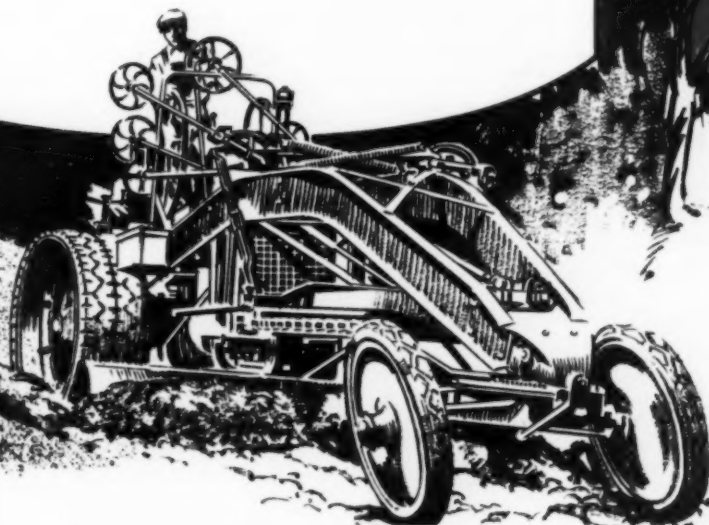
Engineers
and
Manufacturers

MOTOR GRADERS

There IS a difference in GRADERS!

The operator of an Austin-Western Motor Grader can tell the difference in the first fifty feet of road. From his station at the rear of the machine he gets a clear view of the road and blade. Controls are convenient to his hand and sensitive to his touch. He goes places and accomplishes things with an ease and speed that only Austin-Western design and power can make possible. At the end of the day operator and grader have conditioned more miles of road.

The greater capacity for work of Austin-Western Motor Graders is in-built. It has its origin in design, in exclusive features developed and perfected by an engineering organization. It is carried through in the huge plants where these graders are built. An Austin-Western Motor Grader is built with the care and precision that is typical of its leadership in the field of Road Machinery!



Leaning Wheel Graders
Straight Wheel Graders
Motor Graders
Elevating Graders
Dump Wagons
Crawler Dump Wagons
Scarifiers
Rock Crushers
Portable Conveyors
Rollers (Steam and
Motor Driven)
Motor Sweepers
Street Sweepers
Sprinklers
Road Oilers - Culverts
Hot-Patch Repair Outfits
Plows and Scrapers

AUSTIN- WESTERN

*The Austin-International,
Model 15-30. The leaning
front wheels hold the machine
to a straight course by oppos-
ing the side drag of the blade*

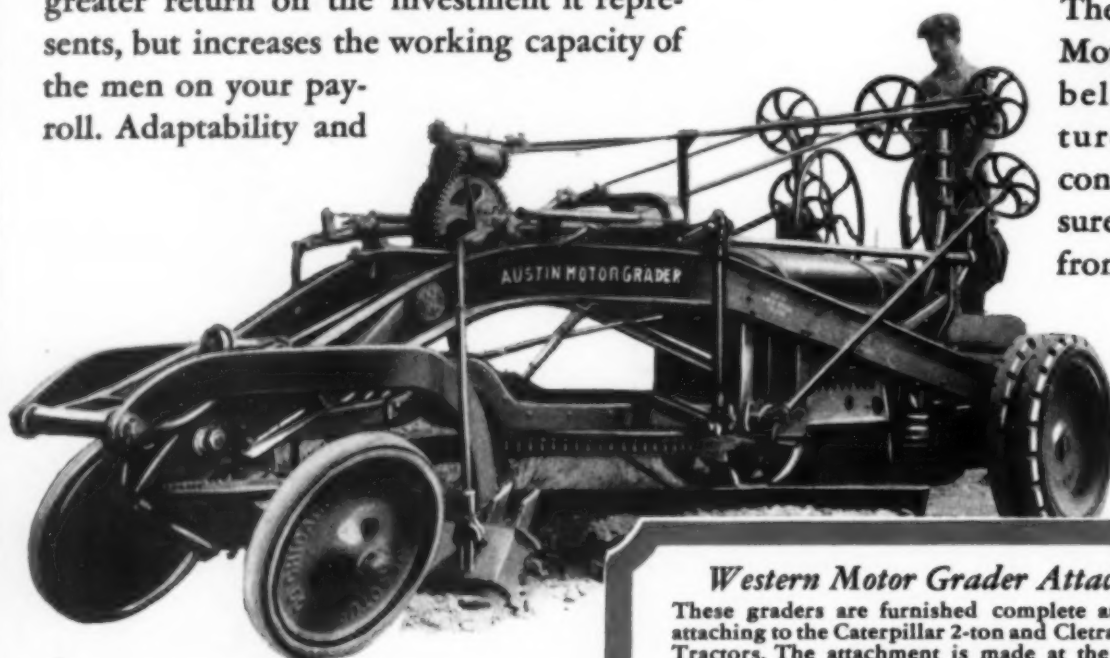
"MOST MILES FOR YOUR ROAD DOLLARS"

Your Road Dollar is Larger with these Graders

After all, you purchase *miles*—not just a grader. The grader that can give you greater total and daily mileage is obviously the best buy—for such a grader not only gives a greater return on the investment it represents, but increases the working capacity of the men on your payroll. Adaptability and

power are the essence of road maintenance economy. Adaptability to constantly changing road contour and power enough to make one trip take the place of two or three.

The Austin-Western Motor Graders shown below embody features of design and construction that insure greater mileage from the road dollar.



Austin Leaning Wheel Motor Graders

The Austin-International 10-20 shown above is an excellent all-around machine for both public officials and contractors.

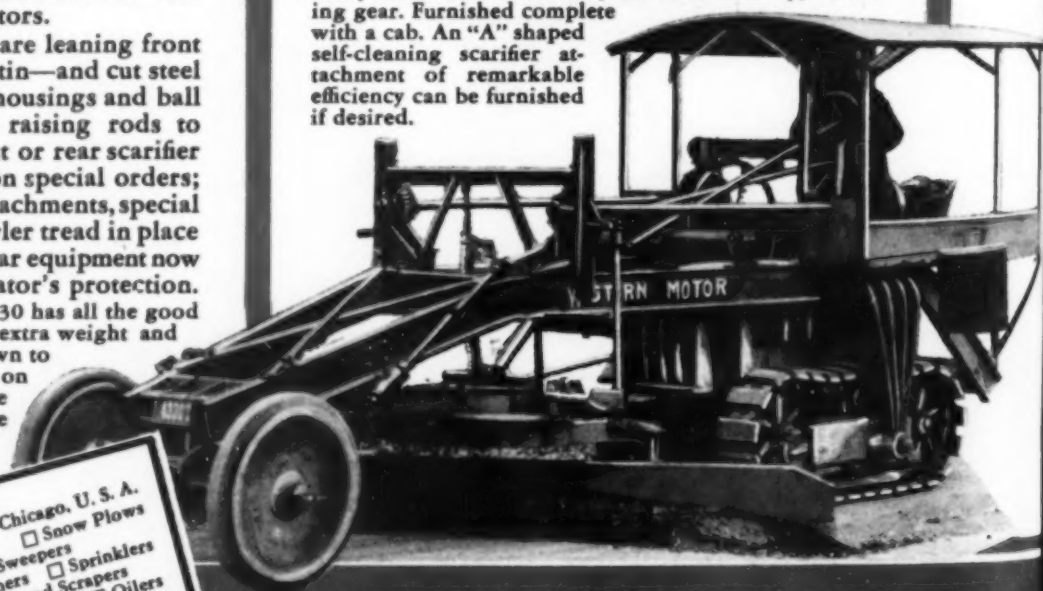
Among its best features are leaning front wheels—exclusive with Austin—and cut steel raising gears in dustproof housings and ball and socket joints on the raising rods to eliminate lost motion. Front or rear scarifier attachments are furnished on special orders; also V-shaped snow plow attachments, special snow blades and a rear crawler tread in place of rubber tired wheels. Regular equipment now includes a cab for the operator's protection.

The Austin-International 15-30 has all the good features of the 10-20 plus the extra weight and power needed to cut right down to the bottom of the corrugations on the hardest gravel roads. The Austin-Fordson has almost all the features of the Austin-Internationals and is an excellent general purpose model.

Western Motor Grader Attachments

These graders are furnished complete and ready for attaching to the Caterpillar 2-ton and Cletrac Model "K" Tractors. The attachment is made at the exact pivotal point of the tractor, insuring complete flexibility.

"No lost motion" blade control mechanism, cut steel gears and ball and socket raising rod connections, is one of the best features of these machines; as are also the heavy frame and front truck, and automotive type steering gear. Furnished complete with a cab. An "A" shaped self-cleaning scarifier attachment of remarkable efficiency can be furnished if desired.



The Austin-Western Road Machinery Co., Chicago, U. S. A.
Dept. 1404, 400 North Michigan Ave., Chicago, U. S. A.
☐ Motor Graders ☐ Road Graders ☐ Snow Plows
☐ Dump Wagons ☐ Street Sweepers
☐ Rollers ☐ Scarifiers ☐ Rock Crushers ☐ Sprinklers
☐ Hot-Patch Repair Outfits ☐ Plows and Scrapers
☐ Portable Conveyors ☐ Elevating Graders ☐ Oilers
Please send literature and full information on items checked

Name _____

Address _____

The Austin-Western Road Machinery Co.

400 North Michigan Avenue
CHICAGO, ILLINOIS, U. S. A.

Branches in principal cities



DON'T POUND
YOUR SKIP
OUT OF SHAPE

JAEGER

USE JAEGER
AUTOMATIC
SKIP SHAKER



SPEED KING that Record Making 7-S

A compact, end discharge, all purpose type that holds one full bag mix of any proportion. It's *handy*—does anything a side discharge mixer will do and more. It's *portable*—trails on dual tires and springs; one man lifts it. It's *fast*—has Accurate Measure Water Tank and Automatic Skip Shaker. It's *sturdy*—100% roller bearing and all-steel construction.

Built in low charge or loader types.

You can save \$200 by buying the Speed King. Get catalog and prices.



More Batches a Day
.... and Here's Why!

10-S

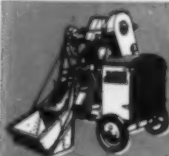
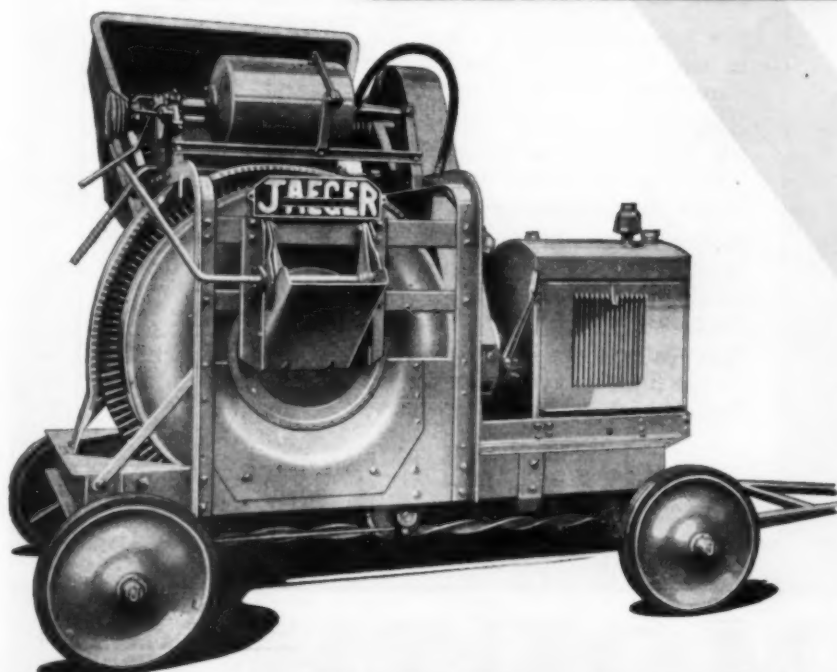
Two Bags

1-2-5 Mix—right size!

It's all-steel—50% stronger, ½ ton lighter. Short coupled and direct driven, it's easier handled than many a 7S size. Big drum openings and Automatic Skip Shaker (no pounding on loader) speed up the batches.

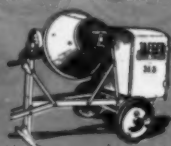
Jaeger Accurate Measure Water Tank is approved by engineers. Send coupon for new catalog and prices.

The Jaeger Machine Co.
800 Dublin Ave., Columbus, O.
Branches and Service in
100 Cities



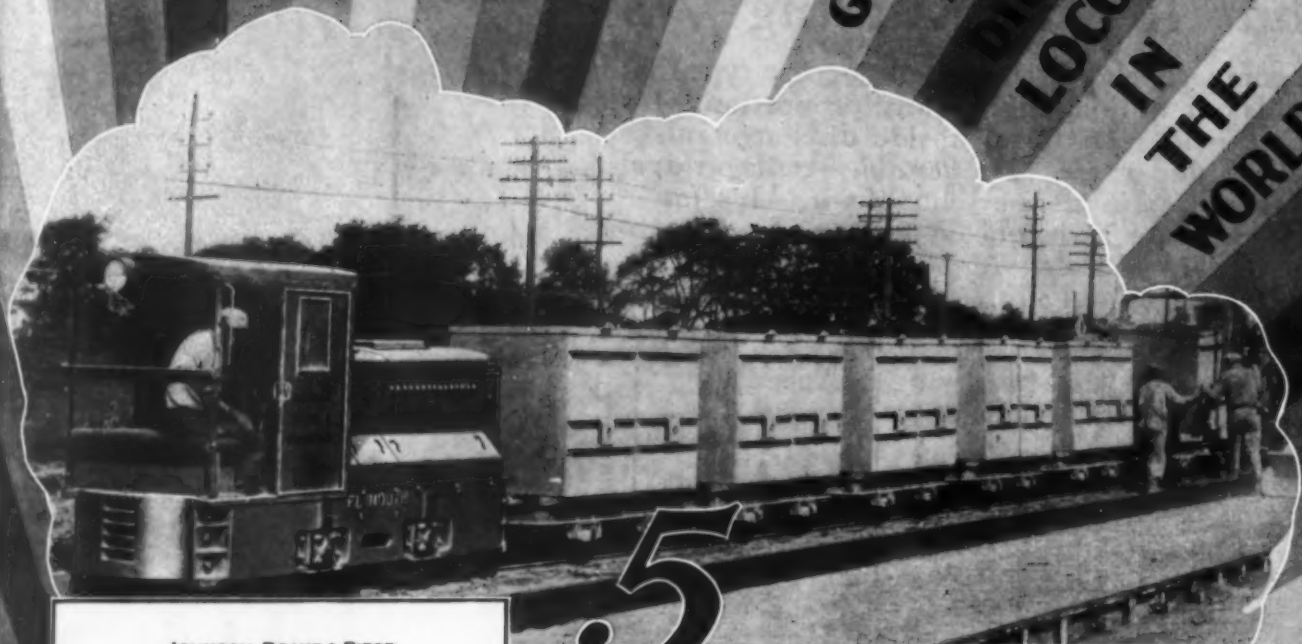
TILTERS with
LOADERS—
3½, 5, 7, 10,
14 Foot Sizes

\$179.50
BUYS THIS
HALF BAG
TRAILER
COMPLETE



THE JAEGER MACHINE CO.,
800 Dublin Avenue, COLUMBUS, OHIO
Please send catalog, prices and terms on --- ☐ Non-Tilt
Mixers ☐ Plaster Mixer ☐ Tilting Mixers
Name _____ Address _____ City _____ State _____
Date _____

ONE
DOMINANT
PURPOSE—
TO BUILD
THE
BEST
GASOLINE
AND
DIESEL
LOCOMOTIVES
IN
THE
WORLD



JOHNSON, DRAKE & PIPER
INCORPORATED
GENERAL CONTRACTORS
MINNEAPOLIS

February 29, 1928

The Fate-Root-Heath Company,
Plymouth, Ohio.
Gentlemen:

On the construction of the Conduit Boulevard, between Rosedale and Amityville, Long Island, we have been keeping two 27E Mixers working to capacity with our five 8-ton Plymouth locomotives.

One of these locomotives is being used as a yard switch engine making up trains, the other four handling twelve to fourteen loaded cars per trip on a maximum haul of 2 1/2 miles. Our heaviest grade is 2 per cent and the locomotives have no difficulty in handling 600 tons of material a day, with a maximum gasoline consumption of twenty gallons for an eleven hour day.

Very truly yours,

JOHNSON, DRAKE & PIPER, INC.

By

5

PLYMOUTHS Keep the Mixers Busy

For Johnson, Drake & Piper, Inc. on the construction of the Conduit Boulevard, between Rosedale and Amityville, Nassau County, Long Island.

Keeping the mixers busy—that's real satisfaction—it's more than satisfaction, it's the key to profits. There is no better insurance against wet season losses than track haulage and Plymouths.

If you have a long paving job or an important time limit contract, now is the time to check into track haulage and its advantages—Why gamble the profits of a good contract on uncertain weather?

Steel rails and sturdy Plymouths running faithfully to the mixers give you that grand and glorious feeling—especially in soggy weather.

PLYMOUTH LOCOMOTIVE WORKS

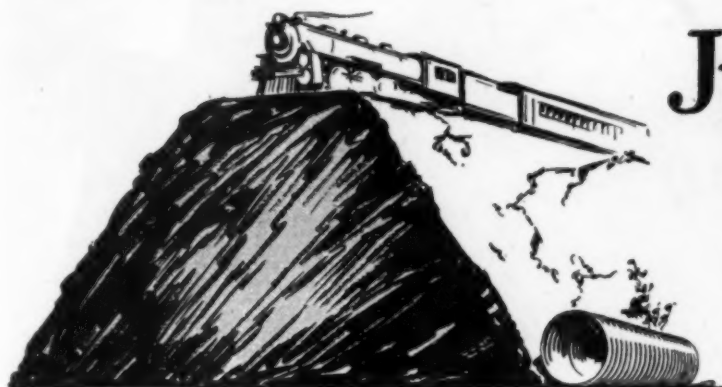
The Fate-Root-Heath Company
PLYMOUTH, OHIO



PLYMOUTH

GASOLINE *Locomotives* DIESEL

For ~~Quick~~ Pipe Placement



Just
jack
an

ARMCO
through

This

to

This

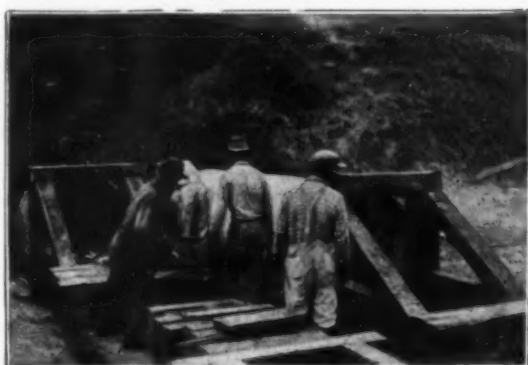
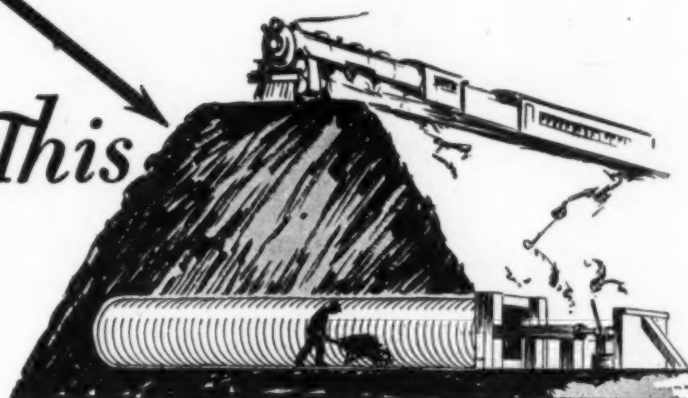
YOU can make added profits through pipe installations by the easy Armco jacking method.

The work is done better at a substantial reduction in cost—savings in your costs usually run from 60 to 75 per cent of the open trench method. This assures a good margin on this work.

There is no disturbance or interruption to traffic; no subsequent settlement to fill; no open trench or costly false work. You simply jack the Armco pipe through.

You can use the method wherever an opening is required through an existing embankment—for additional drainage, for public utility conduits, for cattle passes or to replace a failed structure.

ARMCO CULVERT MANUFACTURERS
ASSOCIATION
Middletown, Ohio



Actual photograph showing simplicity of the jacking method in culvert placement.

Get this Book!

"Reducing the Cost of Culvert Placement" tells how you can increase your profits with this Armco jacking method wherever openings are required under existing embankments—for new culverts, for conduits, for undercrossings, for cattle passes. Your name brings it.



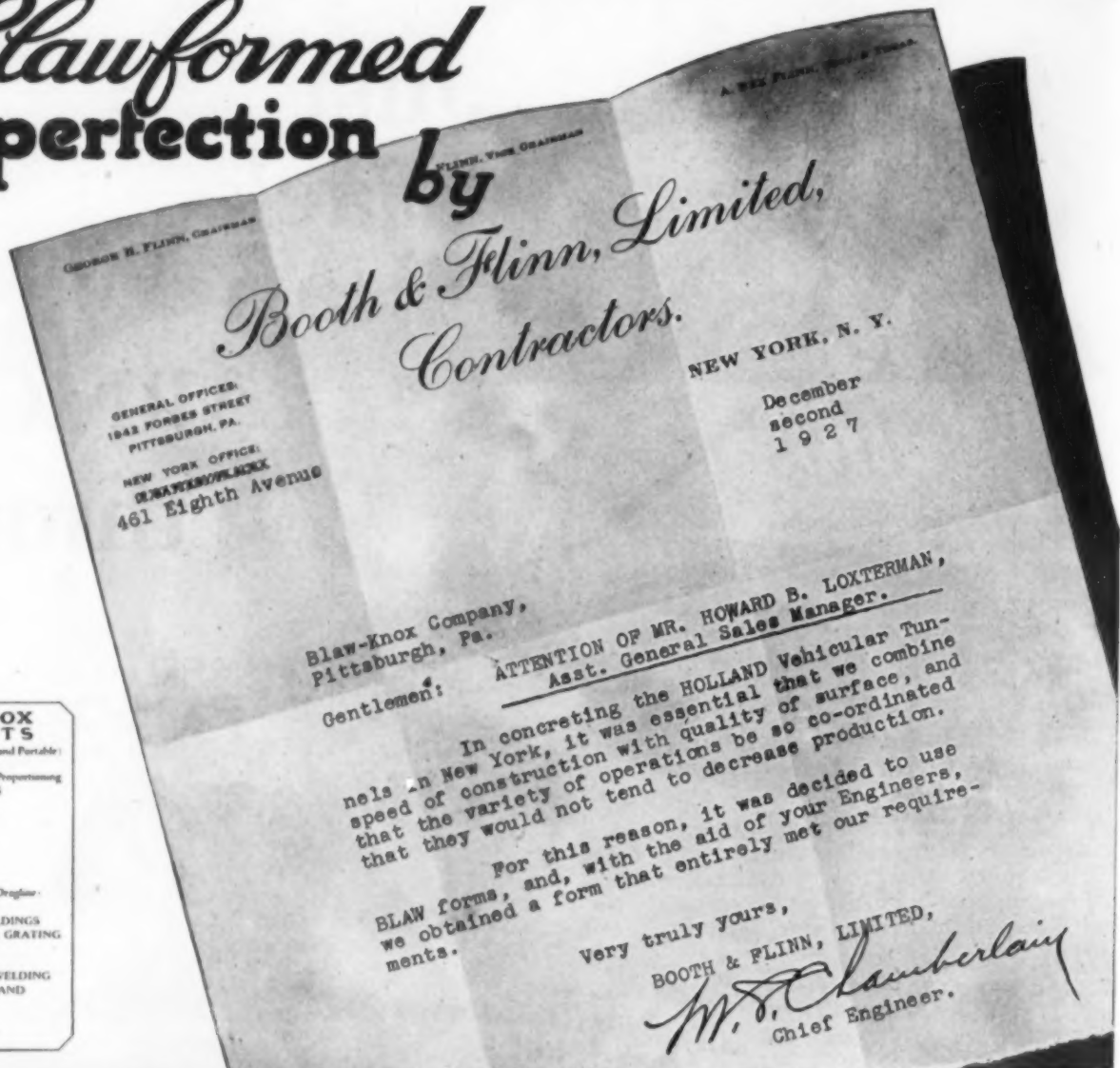
ARMCO PIPE

Predominant in use—because predominant in quality

© 1928, Armco Culvert Mfrs. Assn., Middletown, Ohio.

The HOLLAND VEHICULAR TUNNELS

Blawformed to perfection



**BLAW-KNOX
PRODUCTS**

STEEL BINS: Self-cleaning and Portable;
BATCHER-PLANTS
For Central Mixing and Proportioning
MEASURING BATCHERS
For Volume or Weight
INFUNDATION SYSTEM
For Constant Concrete
STEEL FORMS for
Roads and Streets,
Sewerage and Curb
General Construction
BUCKETS (Clamshell and Dragline)
TURNABLES
STANDARD STEEL BUILDINGS
ELECTROFORGED STEEL GRATING
AND FLOORING
AIR PREHEATERS
FORGE AND HAMMERWELDING
STEEL TRANSMISSION AND
RADIO TOWERS
TRACYFIER
For Purification of Steam



Form No. 3—For forming
the concrete tunnel lining—
showing the overhead track
for transporting the concrete.

Blaw-Knox Steel Forms were used to form the invert, the duct benches and the lining of the Holland Tunnels. The use of Blawforms in this monumental construction is but a repetition of engineering history which records hundreds of major concrete projects as being formed with Blaw-Knox Traveling Collapsible Steel Forms.

These forms have been the economy keystone of contracts covering an unlimited variety of work. Their value to both contractor and engineer is large enough to warrant an investigation as to their use on every concrete job of any size. They save money, provide better finished concrete and expedite the job.

Ask for data on Blaw-Knox Steel Forms.

BLAW-KNOX COMPANY

686 Farmers Bank Bldg., Pittsburgh, Pa.

New York
Chicago
Detroit

Birmingham
Baltimore

Buffalo
Cleveland
Philadelphia

Export Division
MILLIKEN BROS.-BLAW KNOX CORP., 342 Madison Ave., N. Y. City

BLAW-KNOX

The 3rd degree

Why does your wheel get out of shape? Why do you wear out so soon at this point? Why don't you balance better? Why did that bolt pull through there? Why do so many of your handles break?



**[You'll always recognize
General Wheelbarrows
by their orange handles]**

QUESTION—question—question! Grill the prisoner until all the facts are sweated out! until every possible weakness of existing equipment is uncovered and the causes of trouble and expense are cured.

That's the kind of "third degree" used in the designing of General Equipment for Contractors—by General field men working with contractors—out on the job, where buggies and barrows and salamanders and mortar boxes are at work—where actual conditions push theory aside and leave the Hard Facts standing alone.

When General Equipment for Contractors is offered you, it is *ready*—made so by the long, experienced research of a practical manufacturer willing to invest time and effort in these essentials. That's why General Equipment for Contractors, when it gets out on the job, proves uniformly successful in day-in-and-day-out, destructive service.

*Send coupon today for new catalog,
giving your equipment dealer's name.*

GENERAL WHEELBARROW COMPANY

Headquarters for
Wheelbarrows, Concrete Carts, Steel Mortar Boxes,
Scrapers, Salamanders

3140 East 65th Street

Cleveland, Ohio



GENERAL WHEELBARROW COMPANY
3140 East 65th Street, Cleveland, Ohio

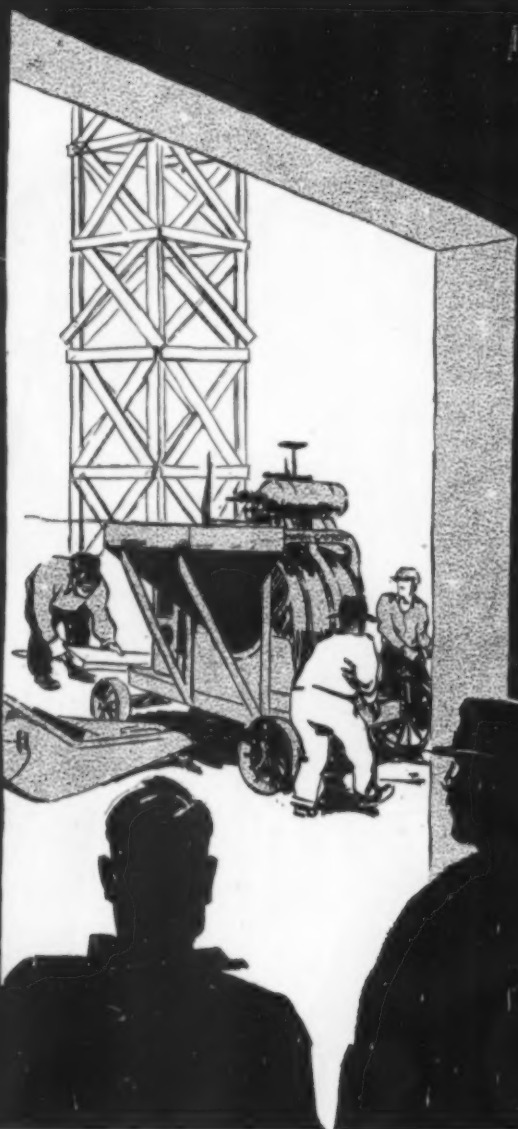
Send us your new catalog. Our equipment dealer's name
and address are

Name

Company Name

Street Address

City, State



"I thought your Marsh-Capron 10-S had a power loader?"

"It has, but I can change to a batch hopper and overhead control in a short time. And that's only one of the reasons a Marsh-Capron is the most profitable mixer you can get."



The Marsh-Capron Co.
11 S. LaSalle St. • Chicago

3½S • 5S • 7S • 10S
14S • 21S and 28S
Tilters and non-tilters



Hats Off!

"By Yimminy, I Never Seen a Hole Blower Like Dat!"

That's what one drill runner said when the rush of air from the blowing device of a Cleveland H7 lifted his hat off his head.

After drilling three five-foot holes he told the big boss that the H7 was the most powerful drill he had ever run.

That's what they all say after using an H7. Because of its power, speed and durability the H7 is ideal for drilling and demolition work.

On a recent demolition job the H7 drilled through 26 feet of re-enforced concrete and brought the iron chips to the surface—we have the chips. It drilled 9¼ inches per minute, as against the other fellow's 4¾ inches per minute!

Investigate this drilling marvel. It will knock the spots off your drilling costs. Write now. Address—



THE CLEVELAND
ROCK DRILL CO.

3734 East 78th St.
CLEVELAND, OHIO

**This "Ad" Aroused So Much
Interest Last Month That
We Are Repeating It**

DID YOU READ IT ?

U. R. A. Contractor,
Somewhere, Everywhere.

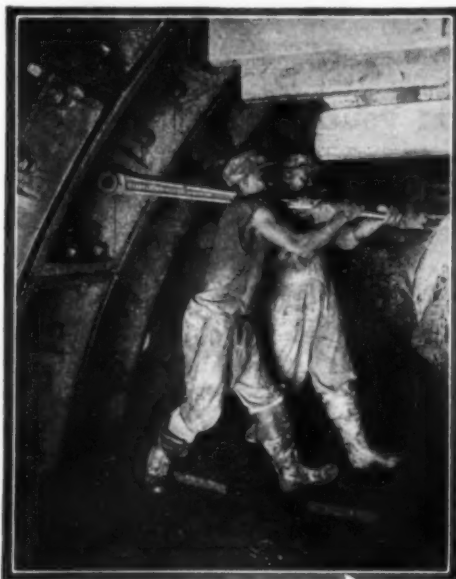
Dear Friend:

Nowadays, you can't be chasing around hunting a gold mine to make your living. You're too busy. Besides gold can be easily made in other ways.

Using a Lowell Reversible Ratchet Wrench is one of the other ways. **IT SAVES TIME AND TIME IS MONEY.**

The man using this tool will tell you,—“No slipping,—no taking off and on the nut,—just one pull after another.” That's the story every time.

When they built the Hudson River Vehicular Tunnel, the Lowell Wrench with its Reversible nature (and that's a good nature to have, too) was right on the job. It performed so well that they have now asked it to help on the new tunnel. It's already at work.



You may not have a job like this, but whatever you have, don't go “nutty” over the amount of time your men lose in using the ordinary wrench. **AND DON'T OVERLOOK IT EITHER.**

Every construction job has a lot of work to be done with wrenches. Yours is no exception.

Pay day? To-day and once every week for the men. There's only one pay day to the Lowell Wrench and that's when you buy it. After that, **IT'S ALWAYS PAYING YOU.**

Think it over. Send for our Catalog M and look that over. **SAVE TIME AND YOU SAVE MONEY.**

LOWELL WRENCH CO.

54 Commercial St.
WORCESTER, MASS.



**DIETZ MONARCH
HOT BLAST
KING OF ITS KIND**

IT pays to use Dietz Lanterns for night warning duty. They have a world wide reputation for dependability in all kinds of weather.

Dietz Monarch is a highly popular Contractors' Lantern of Hot blast type—used in huge quantities on highway construction work—unfailing as a lighthouse in its warnings.

R. E. DIETZ COMPANY

NEW YORK

Largest Makers of Lanterns in the World—Founded 1840

**DIETZ
LANTERNS**



Are you always prepared for NIGHT WORK?

WHEN you have to put a night shift on your construction job, are you prepared with proper lighting equipment? Portable Carbic Light is the most practical light for all-round use.

The Carbic Light is *always ready* — so simple in construction it can be charged in three minutes to burn for twelve hours.

It is *portable* — the popular No. 2 light weighs but 115 pounds fully charged.


It costs only *6 cents an hour* to operate.

Thousands of Carbic Lights are in use today. Your jobber can supply you.

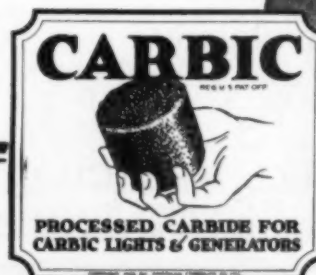
CARBIC LIGHT

OXWELD ACETYLENE COMPANY

Unit of Union Carbide and Carbon Corporation

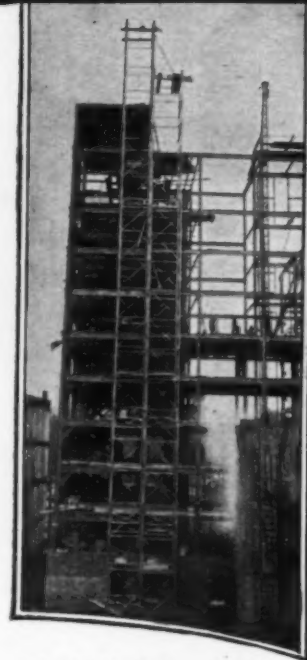
New York City  Chicago
30 East 42d Street Peoples Gas Bldg.
San Francisco, 8th and Brannon Streets

Carbic is distributed by the Union Carbide Sales Company through its national chain of warehouses and is sold by jobbers everywhere.

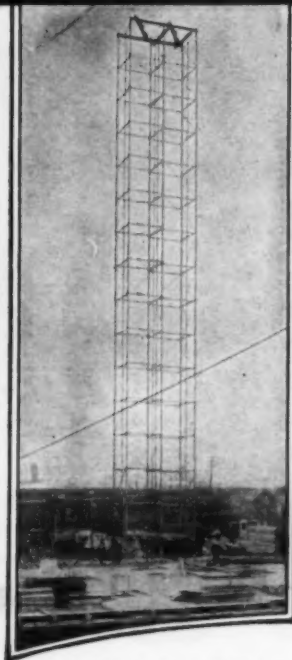
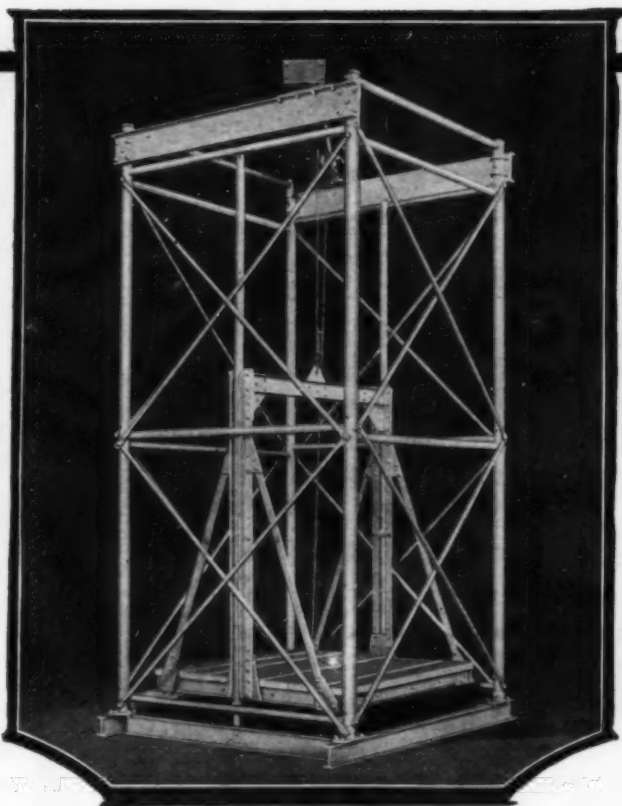


Style No. 2





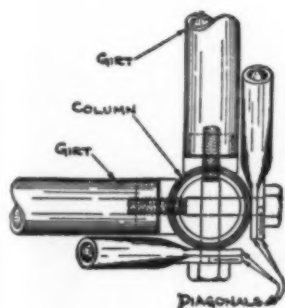
The double Lakewood Material Tower shown, is owned by Sessinghaus & Ostergaard, Inc., of Erie, Penna.



This double Lakewood Material Tower is owned by The Wm. N. Miller Company, of Detroit, Mich.

An Improved Material Tower

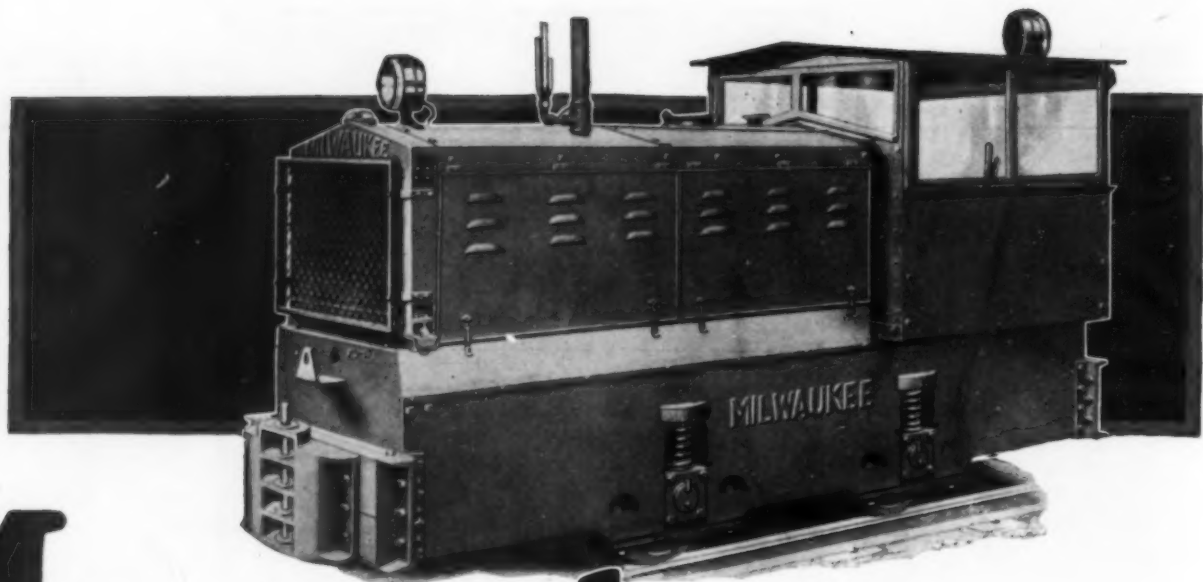
The 1928 Lakewood Material Tower design eliminates nuts and protects all bolt threads from the weather and from concrete. Quicker erection and easier dismantling—Greater salvage—And six fewer pieces to handle and store for every 6 ft. 6 in. section of tower.



Standard tubular parts make up either single or double towers, with automatic 1 yard concrete bucket for use on elevator cage if desired. Three hundred foot heights attained with standard parts.

Get the complete specifications on this improved principle in tower design.—Ask for Bulletin 25-S.

EXPORT OFFICES: 30 Church St., New York City • • CABLE ADDRESS: Brosites
LAKEWOOD
The Lakewood Engineering Co., CLEVELAND • O.



Mastered as *easily* as a Truck!

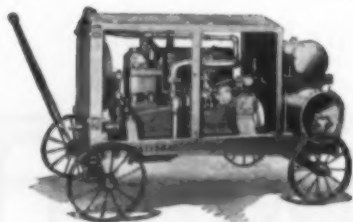
YOU don't need a licensed engineer to run a Milwaukee Gasoline Locomotive. And you don't need a fireman. Even where the labor turn-over rate is high, track haulage operators who use Milwaukee Gasoline Locomotives are not seriously handicapped by "engineer" turnover. Any truck driver can master a Milwaukee Gasoline Locomotive in a few minutes. It's really a super-motor-truck on rails.

Because of their extreme ease of handling, quick starting, 4-speed control, dependable power, sturdy construction, economy of operation, and elimination of fire hazard, Milwaukee Gasoline Locomotives are rapidly supplanting all other types of track haulage equipment. Get acquainted with our Type "H" models. Made in all sizes, for any gauge track. Backed by twenty years' gasoline locomotive designing and manufacturing experience.

MILWAUKEE Gasoline Locomotives

MILWAUKEE LOCOMOTIVE MFG. COMPANY

Subsidiary of National Brake & Electric Co.
MILWAUKEE, WISCONSIN



Get acquainted with National Air Compressors — the latest and greatest improvement made in gasoline engine driven portable units — the climax of thirty-one years' designing and engineering development. Engine and Compressor are a compact unit mounted on one crankcase and operated by one crankshaft.

SIZES: 110, 160, 240 and 330
Cubic Feet, standard mountings.

NATIONAL BRAKE & ELECTRIC CO.
Division of Westinghouse Air Brake Co.
MILWAUKEE, WIS.

National
AIR COMPRESSORS
ANOTHER
WESTINGHOUSE
PRODUCT

Exclusive Territorial Sales
Franchises Available.



A New Breed of Iron Mule!

The Hughes-Keenan Short Haul Marvel

Powered by McCormick-Deering

IN ADDITION to the Fordson Iron Mule there is now the McCormick-Deering—a new Iron Mule of extraordinary power, stamina and usefulness. The quick haul, two yard load and more, through tough going in difficult corners, any weather—that made the Iron Mule famous, all are here, and more, too.

A special McCormick-Deering 10-20 Tractor furnishes abundant power. Easy control and steering, clear vision in all directions for the driver. Automatic gravity dump body, heavy reinforced steel, rugged construction throughout.

This Iron Mule is shipped complete from our factory, tractor and body—ready to add gas and start slicing your earth moving costs. Write for complete information on the Iron Mule and on Hughes-Keenan Steel Dump Bodies for all light trucks.

THE HUGHES-KEENAN CO., Mansfield, Ohio

HUGHES-KEENAN

Steel Dump Bodies

KOEHRING



NO NIBBLING!

NO "start — stop — and nibble, nibble" to give the Koehring dipper a heaping load! The Koehring bucket *bites deep* — because there's generous power behind it, directly applied through *independent crowd*!

That's a big time-saver on any kind of job! A money-maker for every Koehring owner!

Deep-biting bucket, fast swing, accurate dumping — all teamed together by Koehring Finger-Tip ease of control — make the Koehring the High Speed Shovel.

Crowds above and beyond the end of the boom! Everything functions instantly at command of control levers without special settings or adjustments for different kinds of work. Ready for them all — *instantly* — high bank work, deep close-in digging, high or low dumping, shallow stripping! Know the

Koehring and know how Koehring Heavy Duty construction stands up to high speed operations.

Write for Shovel Bulletin No. S-17

Shovel Capacities

Line-of-plate truck measure.

Quickly convertible to crane or dragline.

No. 301 — 19'-6" Boom. $\frac{5}{8}$ Yd. Dipper on 19' Dipper Sticks; $\frac{3}{4}$ Yd. Dipper on 16' Dipper Sticks; 1 Yd. Dipper on 14' Dipper Sticks.

Shock absorber on boom. Wisconsin four cylinder gasoline engine, $5\frac{3}{4}$ " x $6\frac{1}{4}$ ", 1,000 R. P. M.

No. 50. — 24' Boom. 1 Yd. Dipper on 19' Dipper Sticks; $1\frac{1}{4}$ Yd. Dipper on 16' Dipper Sticks; $1\frac{1}{2}$ Yd. Dipper on 14' Dipper Sticks.

Shock absorber on boom. Wisconsin four cylinder gasoline engine, 6" x 7", 925 R. P. M.

KOEHRING COMPANY MILWAUKEE WISCONSIN

PAVERS, MIXERS—GASOLINE SHOVELS, CRANES AND DRAGLINES

Sales Offices and Service Warehouses in all principal cities

Foreign Dept., Room 1370, 50 Church St., New York City.

Mexico, P. S. Lapum, Cinco De Mayo 21, Mexico, D. F.



A-4545-1

Speed up with Air

HIGH up on the cliffs of Logan Pass—where before only mountain goats disturbed the peace of the wilderness—six Vibrationless Compressors are helping to build a scenic highway.

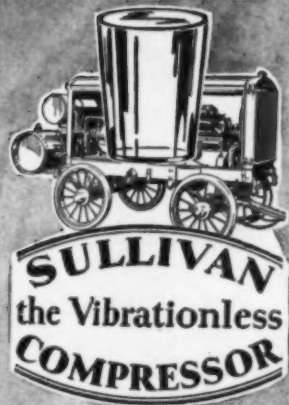
They are at work for Williams and Douglas, Tacoma contractors, on the new Trans-Mountain project in Glacier Park. The first compressor to reach the job was carried in part by part on horseback—assembled on the side of the mountain—and left to work its way out toward the shovel.

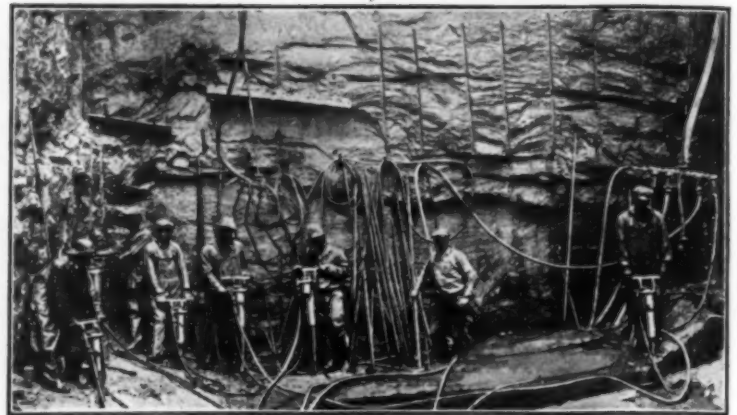
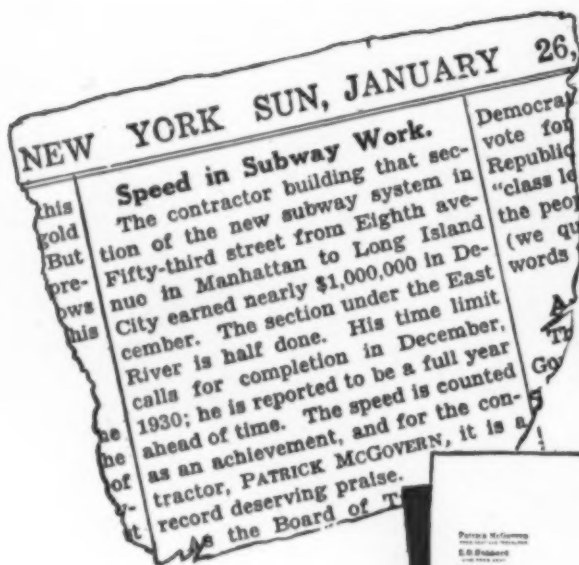
Miles of pack horse travel lie between the six machines and skilled repair service; sub-zero weather has added to the difficulties of the undertaking; but the contractors know they can depend on these compressors which Sullivan engineers have made *Vibrationless*.

The complete story, and others as interesting, are in the new Vibrationless Compressor picture book, "Speed Up With Air." Send for it today.

SULLIVAN MACHINERY COMPANY

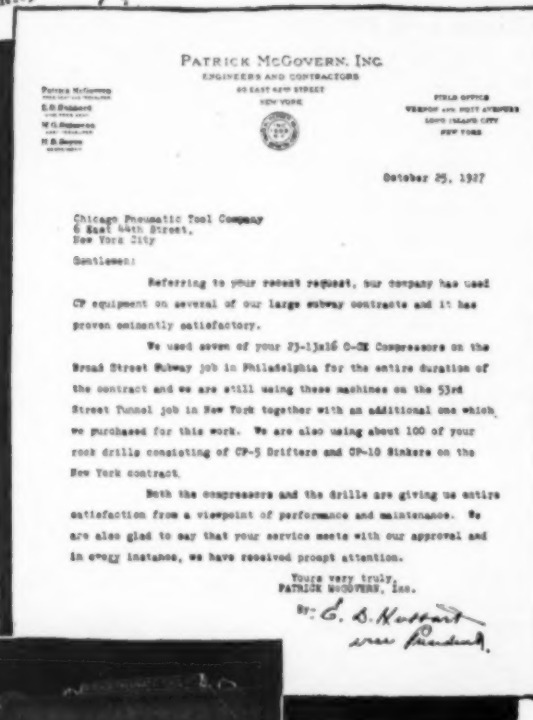
168 S. Michigan Ave., Chicago, Ill., U. S. A.





A few of the more than 100 CP Rock Drills used by PATRICK McGOVERN Inc., in establishing the noteworthy record referred to in the "Sun" editorial

THE editorial clipping above and the letter below it, present definite and convincing reasons why one of the most prominent and successful contractors in the country prefers CP compressors and Rock Drills.



**Rock Drills
and
Compressors
may be
depended upon for
Consistent,
Economical
Performance**



Six of the eight CP Air Compressors whose dependable performance played an important part in enabling the contractor to make a record that earned editorial praise from one of America's leading newspapers

PATRICK McGOVERN, Inc., aided by CP equipment, has achieved a praiseworthy record. Similar CP equipment is establishing equally impressive records for dependability, economy and long life in contracting work, mines and industrial plants throughout the world.

Write for Air Compressor or Rock Drill Bulletins



Chicago Pneumatic Tool Co.

Sales and Service Branches all over the world

6 East 44th Street New York, N. Y.

C-281



Protection

The Lind Construction Co., Chicago, used 10,000 bags of mortar cement in Bates Multi-Wall Paper Bags on this apartment hotel job.

Bates Multi-Wall Paper Bags, made in 8 modern plants throughout the country by the Bates Valve Bag Corporation, are the Contractor's insurance against loss on cement and plaster.

Bates Bags empty out clean. They do not have to be returned. And their five strong separate walls are the surest protection against moisture and rough handling.

Buy your Cement and Plaster in Bates Multi-Wall Paper Bags and avoid loss.

BATES VALVE BAG CORPORATION
35 E. Wacker Drive, Chicago, Ill.



ACCEPT NO SUBSTITUTE

Sterling



"perfect balance"—the load is carried over the wheel not on the arms.

More capacity loads per man per day means more work and more real profit.

Sterling designed their barrow to carry the load over the wheel, when in a wheeling position, and not on the arms. With a Sterling the man pushes the load, not carries it. In actual weight-lifting tests it has been proven that it requires less strength per equal load to lift and wheel a Sterling than any other. This feature is not found in ordinary barrows—and is only possible in a Sterling because of scientific designing of tray and supporting braces.

The "perfect balance" gives position—the ease of wheeling is the result of specially designed wheel and axle fitted with "self-lubricating" bearings. The bearings are guaranteed for life—no oil service ever needed. Sterlings wheel as easy when they're old as when they are new.

Wheelers like to work with a Sterling—try them on your next job and see how much more work you get out of them.

Buy by Sterling name—leading hardware and equipment dealers have them or they can get them quickly from our complete stock warehouses at Chicago, New York, Philadelphia, Pittsburgh, Cleveland, Detroit, St. Louis

SPECIAL STERLING FEATURES

Self-lubricating bearings	Selected maple handles
10-spoke wheel	Special tubular steel handles
Malleable iron brackets	Handles clamped—not bolted
Smooth wheel face	Top of tray reinforced
Wrought steel hub	Channel steel legs
Riveted and cast to hub spokes	Riveted leg braces
Fixed rolled steel axle	Extra leg shoes
"V" front tray braces	Wrought iron handle tips

All parts interchangeable

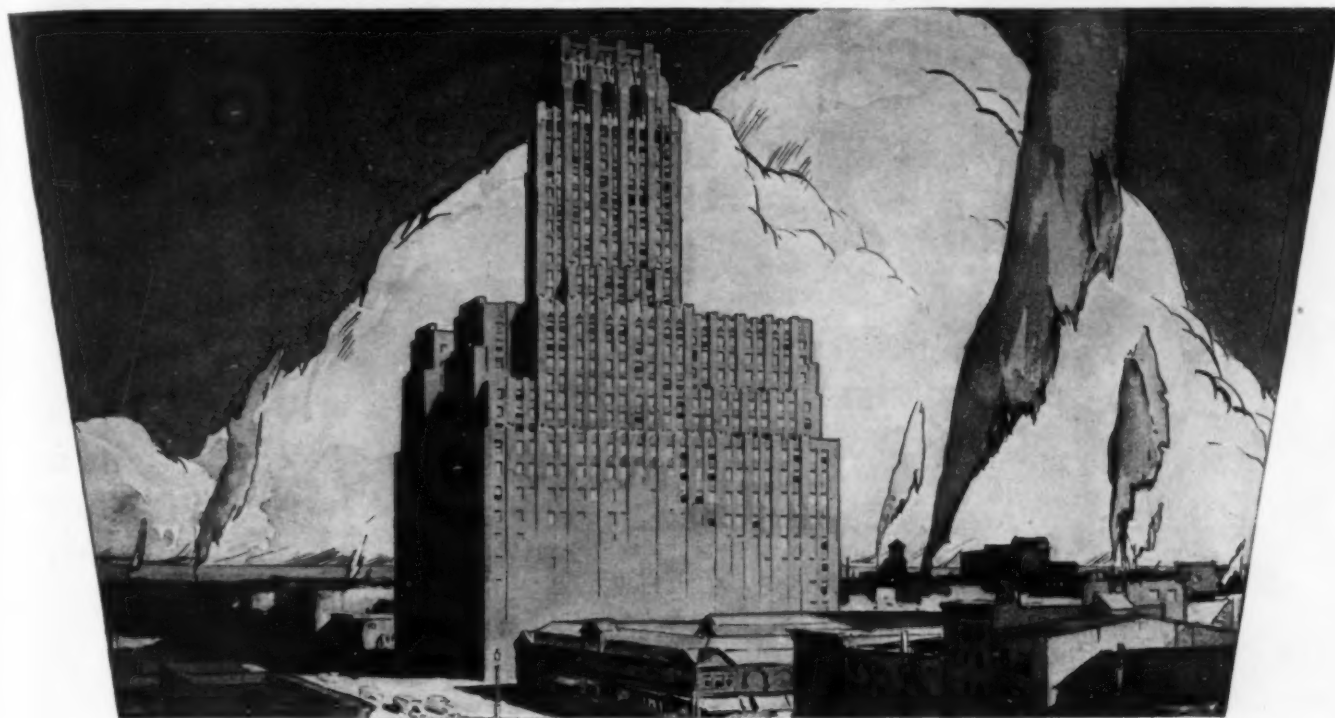
STERLING WHEELBARROW COMPANY

STERLING ON A WHEELBARROW MEANS MORE THAN STERLING ON SILVER

Milwaukee

Wisconsin

DEPENDABILITY and PERMANENCE • • The True Measure of Quality in Portland Cement



A CONCISE and simple statement expresses the evidence of Atlas quality here presented: A great organization, having used Atlas once, specified it again many years later. ¶ In 1914, in the construction of the American Telephone and Telegraph Building, Atlas Portland Cement was the choice. For the New York Telephone Building, erected twelve years later, Atlas was again selected. ¶ The inference is obvious. Tested in the practical laboratory of Time, Atlas had proved its dependability and permanence. ¶ Instructed by this experience of a great technical organization, contractors who are

planning to build a bank or a bungalow, a ramp or a road, a stucco house or a soaring skyscraper, may with security select Atlas Portland Cement — "The standard by which all other makes are measured."

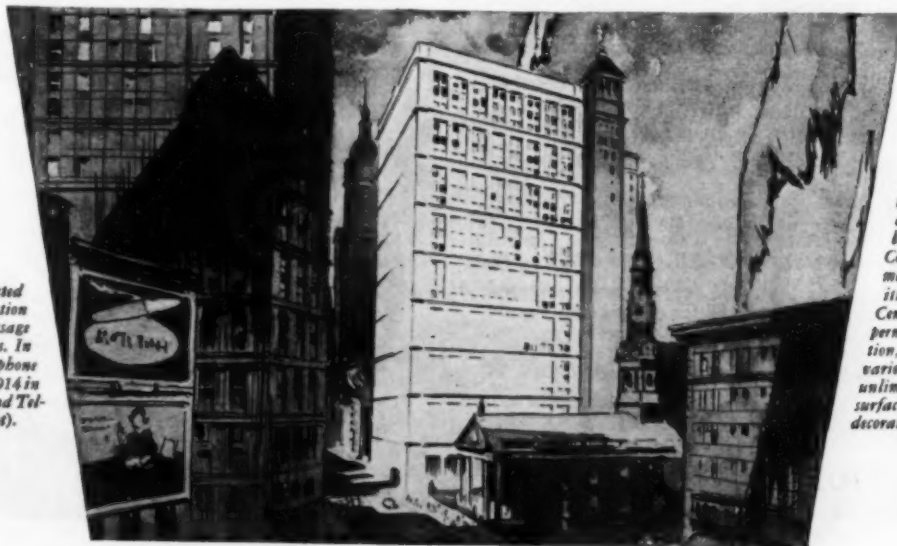
In brilliant and arresting color, the illustrations here shown in black and white, will be seen in the great national magazines by many millions of potential and present builders. Practically the same simple, direct copy will tell them the convincing story of proved Atlas quality. Naturally, as the result of this consistent, regular Atlas publicity, clients recognize the reasons that prompted the contractor to select Atlas. Watch for Atlas national advertising in the magazines. The Atlas Portland Cement Company, 25 Broadway, New York.

ATLAS PORTLAND CEMENT GRAY & WHITE

Main Offices: New York • St. Louis

NEW YORK • ST. LOUIS • CHICAGO • BIRMINGHAM • KANSAS CITY • PHILADELPHIA • BOSTON • DES MOINES • OMAHA • ALBANY

A great organization dedicated to the spirit of communication that bids them, "Get the message through," twice used Atlas. In 1926 in the New York Telephone Building (above) and in 1914 in the American Telephone and Telegraph Building (at right).



A vastly enlarged range of artistic possibilities is given to concrete by Atlas WHITE, perfected by The Atlas Portland Cement Company. A true portland cement, it has all the famed qualities of Atlas GRAY Portland Cement—high tensile strength, permanence, economy. In addition, it invites architects to plan varieties of color, to choose from unlimited and widely varied surface textures, to specify even decorative sculpture of concrete.

A New WANDER

No Struts
or Stabil-
izers
Needed



There never was such a mixer! Here is a mixer that embodies the result of nineteen years experience and leadership in building mixers—the mixer that carries the name Wonder. This name in itself is your guarantee of the ultimate value in the way of a concrete mixer. Built as only the Wonder is built—to endure as only a Wonder mixer can, through years of service.

This Wonder "10-S" Non-Tilt is designed to do the work expected of a full size ten foot mixer—and a little bit more. Ultra rapid and complete mixing action, quicker charging and discharging combined with other exclusive Wonder features can mean only one thing, more concrete per day, more dollars to you.

Turns
in a
20-Foot
Radius

Now a Non-Tilt WANDER With SIX Distinct New Advantages

- 1** *Water Enters Drum on Discharge Side.* An accurate measuring, easy operating, fast discharging Wonderquick water tank puts the exact amount of water into the drum. Rapid and uniform saturation of the batch results from supplying water on discharge side.
- 2** *Replaceable Steel Tires on Drum Rollers.* The steel tires on the drum rollers take all the wear. The rollers revolve on Timken Tapered Roller bearings.
- 3** *Automotive Type Front Axle, Easy Steering.* Steering is of the compound automotive type, strong, rugged and permitting easy turning.
- 4** *All Steel Construction—Maximum Strength.* The mixing drum is constructed of pressed steel, ends electro-welded to a boiler plate body. Frame is built of 7-inch channels.
- 5** *Grouped Controls—One Man Controls It All.* Controls all grouped at one end so operator can view both the charging and discharging side.

- 6** *Enclosed Hoisting Gear Runs in Oil.* The spool shaft has been placed under the frame eliminating cumbersome overhead shaft and sheave.

CONSTRUCTION MACHINERY CO.
448 Vinton St. Waterloo, Iowa

Mail this

Construction Mch. Co., Vinton St., Waterloo, Ia. 448

I'm certainly interested in bigger profits this year. Please send me catalog and prices on machine checked below.

Tilting Loader Models ☐ 3½-S ☐ 5-S ☐ 7-S ☐ 10-S ☐ 14-S ☐ Non-Tilt Mixers

Tilting Trailers ☐ 3-S ☐ 3½-S ☐ 5-S With Auxiliary Hoist for plaster.

Name _____ State _____

City _____

Now for details



HOISTS CLYDE DERRICKS

The Thompson Starrett Co. of New York used three Clyde Erectors' derricks on the new Jewish hospital at Brooklyn. They express themselves as entirely satisfied with the performance of these outfits. You will find in all Clyde units every precaution for the safety of your employees.

You'll Take Pride in Your Clyde!



CLYDE IRON WORKS SALES CO.

DISTRIBUTORS FOR CLYDE IRON WORKS DULUTH, MINNESOTA

NEW ORLEANS: 309 MAGAZINE ST.
NEW YORK CITY: 856 EAST 136TH STREET
PORTLAND, OREGON: 555 THURMAN ST.
SEATTLE: 3410 FIRST AVENUE SOUTH
VANCOUVER, B. C.: STANDARD BANK BLDG.

— BRANCHES —

CHICAGO: 11 SOUTH LASALLE STREET
CINCINNATI: 201 W. PEARL ST.
MEMPHIS: 69 UNION AVENUE
JACKSONVILLE, FLA.: 112 W. ADAMS ST.
DALLAS: 508 REPUBLIC BANK BLDG.
OMAHA: 1003 FARNHAM ST.



TWO MARKS OF



GUARANTEED QUALITY



Hayward Drag-Line Bucket

WATCH a Hayward Drag-line Bucket at work. Note the crowding action. Note how it fills quickly within its own length.

Watch it carry a full load at the proper angle to the dumping point. See how quickly and easily it discharges.

May we send you Bulletin 666-A? It will give you further information regarding this bucket and its advantages.

THE HAYWARD COMPANY
44 Dey Street, New York, N. Y.

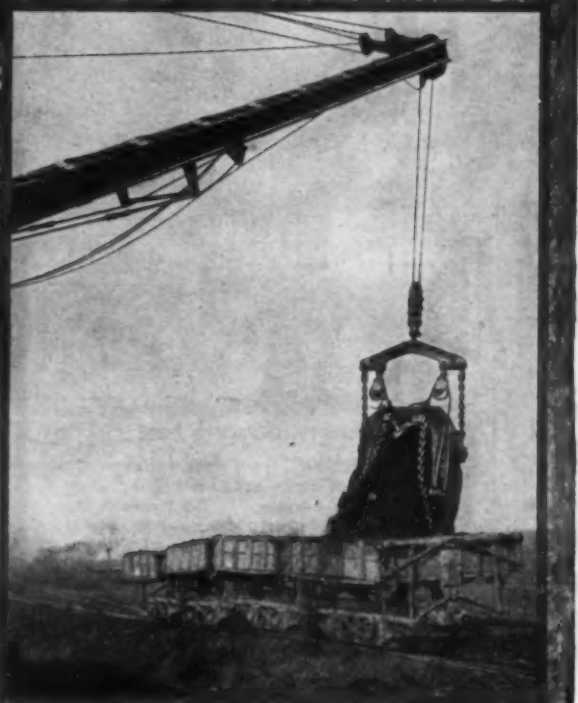
—for powerful digging
—for steady carrying
—for easy discharging



3715-Y



Hayward Buckets



An Owen's heavy, shock-resisting lips hit first when the bucket drops, and the entire weight of the bucket is utilized to force the cutting edges of the jaws into the material before the counterweight touches.

This exclusive, practical design feature assures full or overload capacity grabs every time.

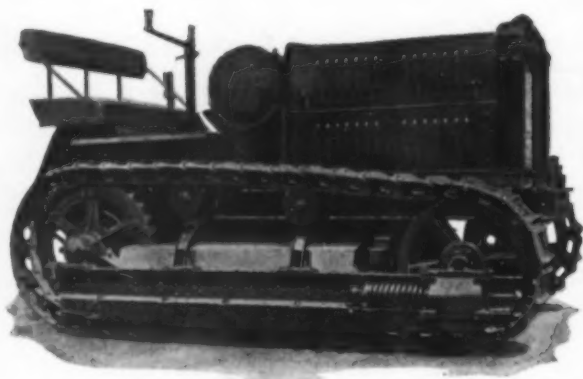
An important maintenance advantage is the ability of these bucket lips to resist

wear when handling abrasive materials. Every Owen Bucket carries a positive Guarantee which insures the purchaser of a bucket of the highest merit—otherwise it need not be accepted. Write for a new Catalogue describing the complete line of Owen Buckets.

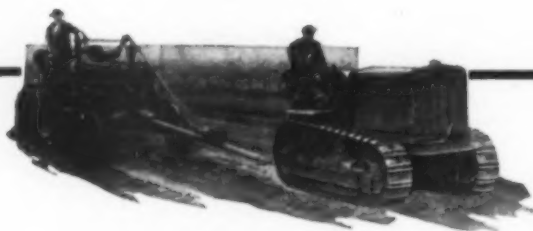
The Owen Bucket Company
6023 Breakwater Avenue
Cleveland, Ohio



Owen Buckets



"Many seasons of faithful dependable service"



THE DESIGN of Bates Tractors is such as to attain the utmost in ease of handling, in great drawbar pull, and massive rugged construction to withstand all the requirements of rough service.

Built broad and low and very staunch in every detail, Bates Tractors are attaining "results" in all types of tractor service.

Material of the highest quality, heat treated, giving the greatest resistance to wear, and devices for the almost perfect exclusion of dust, together with roomy accessibility are large factors in the satisfaction Bates Tractors are giving.

Write for details.

THREE SIZES
28 — 40 — 70

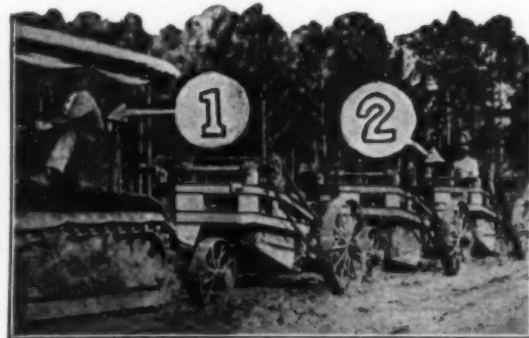
BATES TRACTORS

BATES MANUFACTURING COMPANY
Joliet, Illinois

"MY 2 MEN
BUILT 10 MILES
OF GRADE THIS
SEASON"

"I am more than pleased with the Baker Maney Scrapers," writes Mr. Clarence Helvey, Highway Superintendent, of Kosciusko County, Indiana. "MY TWO MEN (a tractor man and a scraper man) BUILT 10 MILES OF GRADE THIS SEASON WITH A 10-TON CATERPILLAR AND THREE BAKER MANEY SCRAPERS."

Keeping down labor costs is only one of the many features possessed by these reliable dirt movers. Big yardage—few men—short turning—smooth trailing—strong construction and long life, coupled with their ability to cut closely to grade, are the things that have made Baker Maney Scrapers so successful.



BAKER MANEY
Self Loading Scrapers

Use coupon below in requesting Baker Maney Catalog and other Baker literature.

THE BAKER MANUFACTURING CO.
568 Stanford Ave., Springfield, Ill.

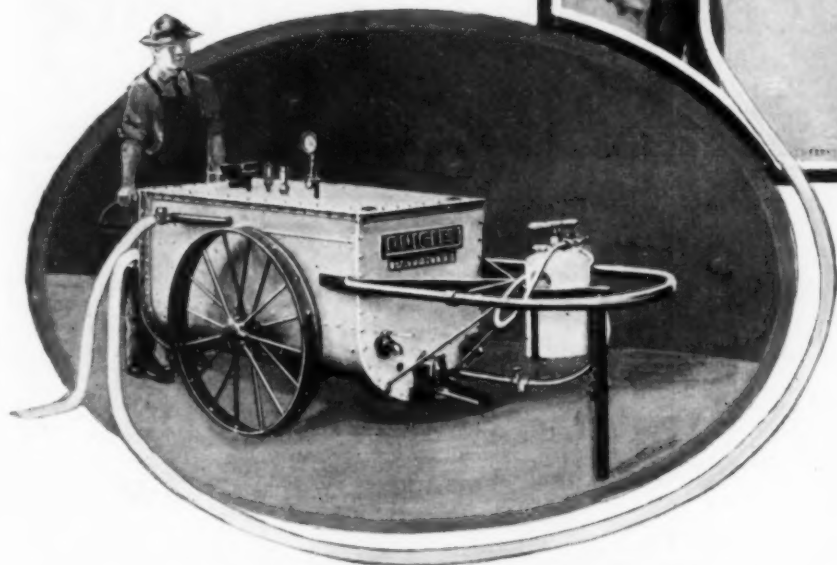
Equipment for Earth Moving, Road Construction and Maintenance.

Please mail literature on items checked.

☐ Baker Maney Scrapers ☐ Baker Rotary Scrapers ☐ Baker Road Maintainers

Name.....
Address..... (Name of tractors used)

The Quigley Bitumen Gun



**Shoots
Hot Tar
Pitch
Asphalt
Enamel
Paraffine
Wax**

**— does the work of 12 men —
and does it better!**

For applying protective coatings to foundations, walls, roofs, vats, dams, reservoirs, pipe-lines, ships, steel or other structures, the

Quigley Bitumen Gun

does the work of 12 men—and does it better.

It shoots or sprays hot liquids of any consistency or temperature through special insulated hose up to 200 feet from the Gun, without regard to atmospheric temperature. The wasteful, unsatisfactory method of smearing the coating on with brushes or mops is entirely eliminated.

Easy regulation of heat, fineness and volume of spray gives full control of thickness of coating and permits close figuring of materials and time required.

The saving on one job may pay for the Gun!

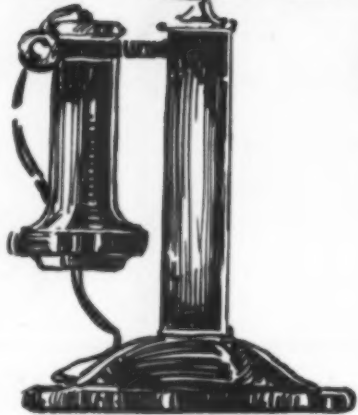
Bulletin No.
C.M. 301
gives full
details.
Write for it.

More than 100 Quigley Distributors
in this and foreign countries

QUIGLEY

FURNACE SPECIALTIES CO.
26 Cortlandt St., New York City

CORTLAND 8240



for good equipment
backed by real service

REPRESENTING—

Koehring Co. Insley Manufacturing Co. Blaw-Knox Co.
Clyde Iron Works. C. H. & E. Mfg. Co. National Brake &
Electric Co. Bay City Foundry & Machine Co. Huber Man-
ufacturing Co. Handy Sack Baler Co.

R. E. BROOKS CO.

EQUIPMENT for CONTRACTORS

50 CHURCH ST.

NEW YORK CITY

There Must Be Something To Them!

Over two hundred Rogers Heavy Duty Trailers in use, and more than three thousand of our Light Trailers in West Africa alone.

Sixteen users have repeated, and the repeat orders total forty-two Heavy Duty Trailers.

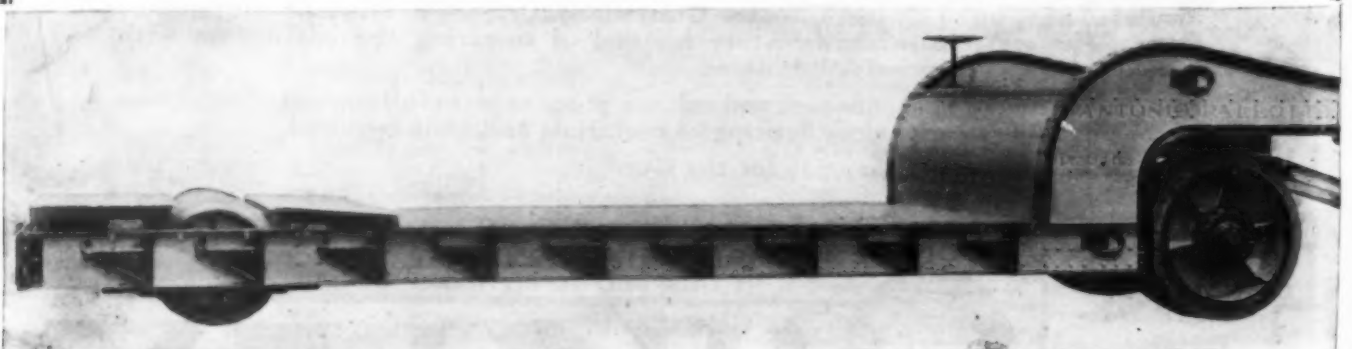
There must be something to our claims

for stamina; short turning radius; proper load distribution; time, load and road saving; low cost of operation.

There *is* something to them. It's not an idle boast—sales prove it.

We'll gladly give you the reasons for Rogers' superiority and success.

Write for complete information.

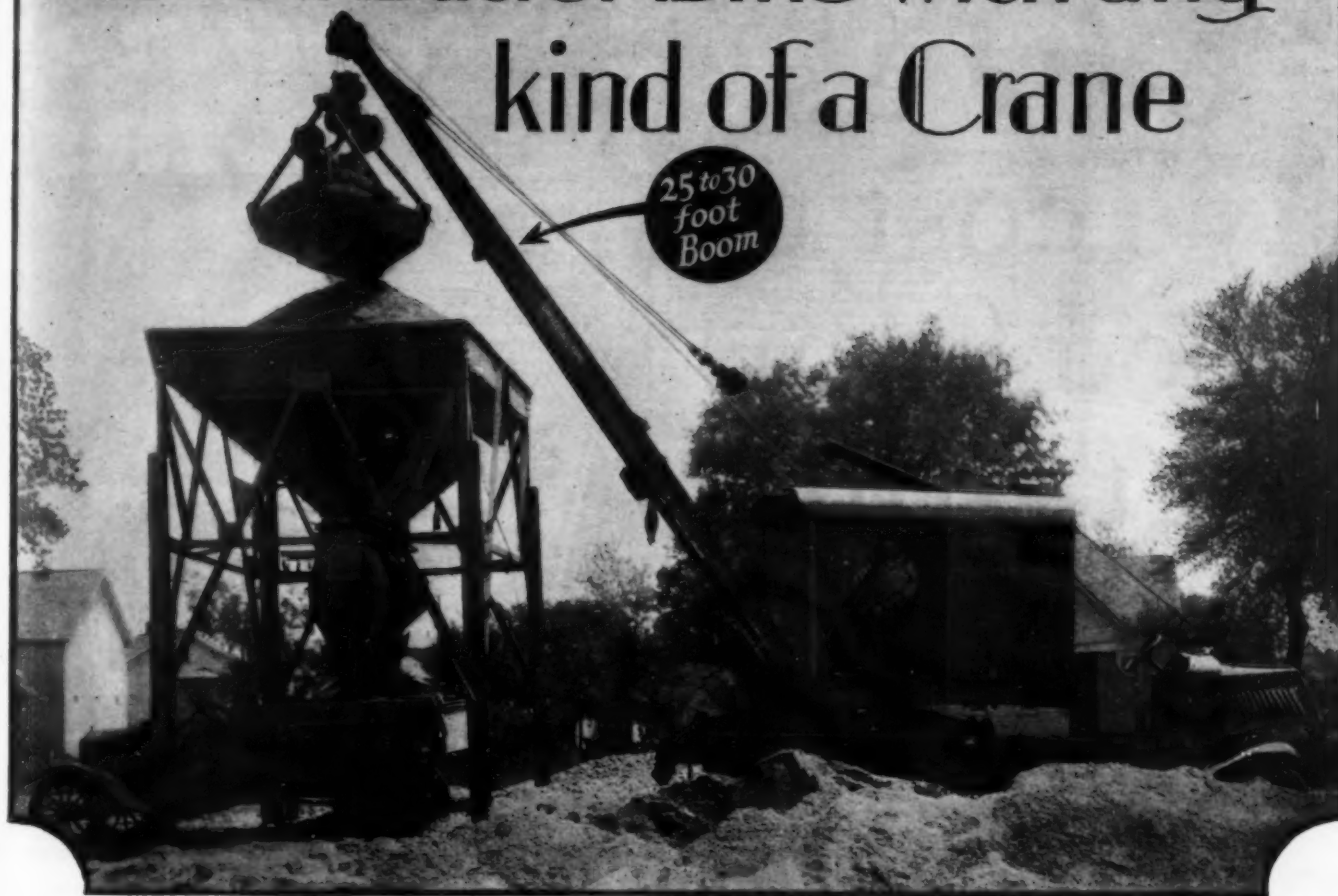


*Standard ROGERS TRAILER, "Gooseneck" type
with four rear wheels in line on rocking axles.*

THE ROGERS BROTHERS CORPORATION

ALBION, PA.

Load Butler Bins with any kind of a Crane



In transporting a Butler V-20 Bin, the top extends only 6' 5" above the truck body.

The first erecting operation is shown above. One side is raised to position by backing the truck—the other with the dump body.

THE LOW over-all height of Butler Bins puts them way ahead of the field when loading facilities are limited. The V-20 shown above (20 cu. yds. capacity) is being loaded with a 28-ft. boom—and loaded *full*.

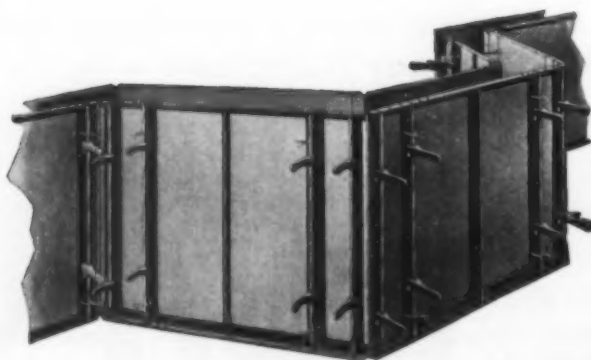
A truck crane is all that's necessary to get the advantage of quick loading with a Butler Bin. There's no need of a big investment in an expensive crawler.

Butlers represent the biggest value in portability, loadability and usability. Ask any Butler user why.



IT'S THE
exces-
sive cost of
wood forms
that holds
down your
construction
profit—get

Metaforms
*for every form building
requirement*



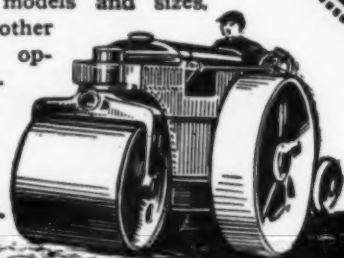
METAL FORMS CORP.

Milwaukee, Wisconsin

BUFFALO- SPRINGFIELD ROLLERS

Investigate and you will learn that Buffalo-Springfield rollers have been the unquestioned preference of the great majority of buyers, and that every practical up-to-date feature known to roller design is keeping them in the forefront now as in the past.

All practical models and sizes. Scarifier and other attachments optional. Illustrated literature ready to mail.



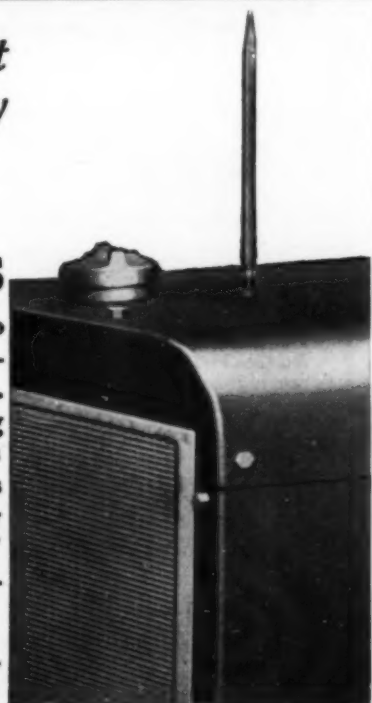
The
BUFFALO-SPRINGFIELD ROLLER CO
SPRINGFIELD - OHIO

*Here's what
we mean by
vibra-
tionless*

This 2-cylinder Novo Rollr Engine is running at 1800 r. p. m. The pencil standing on top remains motionless. That's what we mean by "Vibrationless." Send today for complete details.

NOVO ENGINE CO.

214 Porter Street
LANSING, MICHIGAN



NOVO THE NEW
ROLLR
Engines
Clarence E. Bement Vice-Pres. & Gen. Mgr.



Supreme!

Cletrac

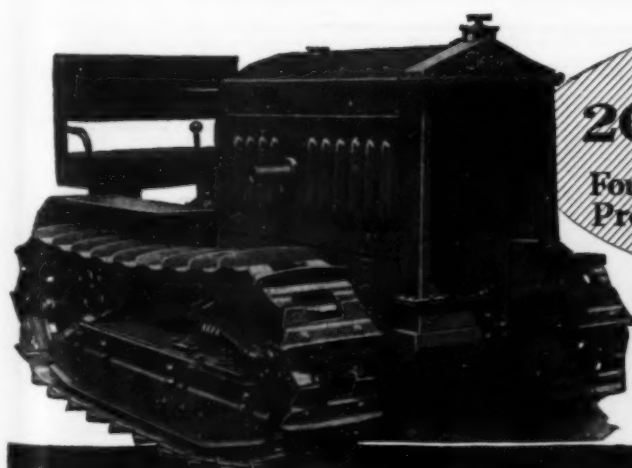
Crawler Tractors

FOR road construction or maintenance there simply is no better tractor than CLETRAC! CLETRAC on the job means a definite reduction in costs — a big saving of time and labor on every power operation — an ability to perform *more work and better work* every day in the year.

Here is POWER and TRACTION to handle your heaviest equipment—SPEED that enables you to wade through work in record time—EASE OF CONTROL and SHORT TURNING that permits operating in close quarters—INSTANT “ONE-SHOT” LUBRICATION that saves time out for oiling. These and a score of other valuable tractor features are built into CLETRAC to increase its value to you and to make it *supreme in the field of highway work!*

Write — or mail the coupon today for the CLETRAC Complete-Line Catalog.

THE CLEVELAND TRACTOR COMPANY, Cleveland, Ohio



Cletracs

20-30-40-100

Four Models That
Provide a *Complete*
Range of Power!

**MAIL THE
COUPON**

THE CLEVELAND TRACTOR CO. C.M.
Cleveland, Ohio.
Mail the new CLETRAC road catalog
at once to

Name _____
Address _____

Never A Drop of Water in This Basement —It's Waterproofed with "ANTI-HYDRO"

The concrete basement in this building had to be absolutely dry because it contains a restaurant, also the equipment and storage rooms for the theater. In order to eliminate the slightest possibility of dampness the entire basement was waterproofed with a plaster coat mixed with "ANTI-HYDRO." It is *permanently* dry and free from the slightest suggestion of moisture.

You will find "ANTI-HYDRO" extremely easy to use. Being a liquid integral compound it mixes easily with water without the aid of skilled labor. It waterproofs, hardens and dustproofs concrete in one operation, accelerates the set of concrete, increases its strength and actually saves you money.

For 24 years "ANTI-HYDRO" has proved its merit on every type of concrete work. Results are *guaranteed permanent*. Use it on your next job.

ANTI-HYDRO WATERPROOFING CO.

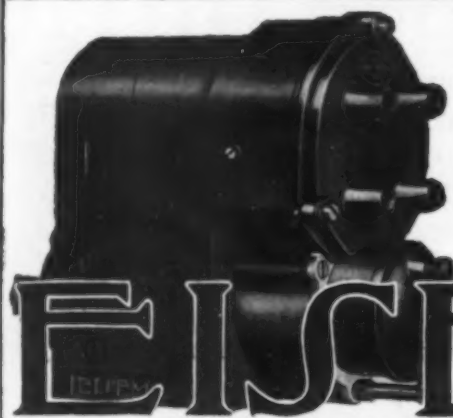
265-269 Badger Avenue, Newark, N. J.



APOLLO THEATRE, INDIANAPOLIS, IND.



VONNEGUT, BOHN & MUELLER, ARCHTS.
BEDFORD STONE & CONSTR. CO., CONTR.



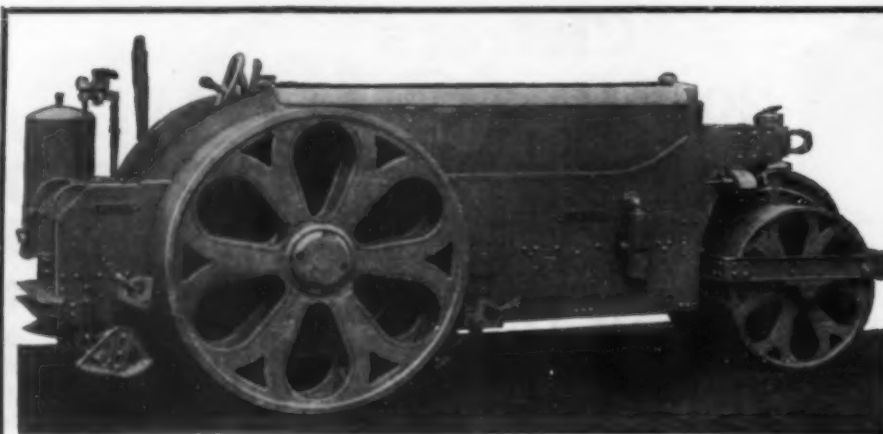
The Preferred Magneto ~for Construction Equipment



The overwhelming choice of the builders of high quality equipment. Favored by contractors everywhere.

EISEMANN MAGNETO CORPORATION
165 Broadway - New York

EISEMANN



HUBER

4 CYLINDER
MOTOR ROLLERS

Powerful and dependable, quick in action, economical to operate. Made in 4 sizes (5-7-10-12 Tons). Send for Huber Motor Roller Catalog.

THE HUBER MFG. CO.
315 Center St., Marion, Ohio

The Curtis costs less than other portables



Three Savings:

1. **SAVES LABOR.** No non-productive attendant. No taking of men off their work to move the compressor. No stoppage to extend air lines; long line losses eliminated. The Curtis unit does the work of 6 to 8 men at a daily operating cost equivalent to one man's wage.
2. **SAVES FUEL.** One engine instead of two. An economical power plant. Burns kerosene successfully at a great saving of fuel cost.
3. **SAVES INVESTMENT.** Curtis unit and Fordson together cost less than other portable units of equal capacity. If you have Fordson, new investment again practically cut in half.

Yet what more can any compressor do for you at any price?

Your cost of compressed air on any job is made up of two items: (a) compressing the air into the receiver, and (b) delivering it at full pressure to the tools. The Curtis unit will make great savings for you on both items.

The Fordson engine both moves and operates the compressor, reducing your machinery investment. Fuel cost is considerably decreased. The instant mobility of the Curtis, avoiding long, wasteful air-lines, results in obvious economies.

No special attendant is required as the compressor can always be kept within hose length of the work. Operation is practically automatic. Any tool operator can move the outfit as required, with no loss of time and without the necessity of an extra man on the payroll.

The economies of this unit are great and will prove themselves to you upon investigation. Mail the coupon and let us send you full details.

Curtis
Pneumatic Machinery Company
Seventy-Fourth Year
St. Louis

1995 Kienlen Ave., St. Louis

5518-N Hudson Terminal, New York

	Portable Compressor, both operated and moved by Fordson.
	Model "A" Air Compressor. Full self-oiling. Water cooled. Up to 50 H. P.
	Style "V" Two-Stage Compressor. Air-Cooled. 1/4 to 2 H. P.
	Air Hoists, Cranes, Trolleys. Fast, economical, speed up production.
	Paint Spray Compressor. Hand unloader. (By - Pass for starting.)
	Compressed Air Car Wash System. A complete cleaning service.
	Hydraulic Car Washer, 1 H. P.; 2 H. P.; 3 H. P. over size.
	Rotating Auto Lift, Oil-Locked. Absolute control and safety.
	Air Stands. Reel type or tower type. Easy to operate. F3

Check items in which interested

Gentlemen:—Please send me full details on the Curtis Portable Compressor, your proposition and prices.

Name

Address

..... Have you a Fordson?



SEVEN LEAGUE BOOTS
that are brutes for punishment

The Famed Witch-Elk
Engineers' Boot.
Smoked Elk uppers, water-proofed.
Wing tip. Full leather lined. Full
bellows tongue. Heavy Oak outsoles,
water-proofed Chrome middle soles.
Flange heel.

Boot Miles Made Them Famous

Have you ever wished for comfortable boots that would be dry in the swamp, light in the sands, tough in the rocks, and soft enough to bend easily as you climb hill sides or squat to peep through a transit?

Then you have been wishing for the famed Witch-Elk boot—made especially to fit all the punishing, brutal field conditions of the engineer. Plainly—Witch-Elks have the guts to stand up against years of hard usage, delivering comfortable boot miles free from foot misery.

Witch-Elk boots, designed particularly for engineers, are made from the finest materials money can buy. Expert craftsmanship and 30 years of boot-making experience have made them famous the world over for longer wear with less fatigue. That is why so many engineers buy them by name.

At your local dealer or, if you wish, we will send you a friendly booklet that gives many pointers on good leather boots.

Witchell-Sheill Company, Detroit
World Wide Reputation . . . On Fields of Recreation

Buhl

AIR COMPRESSORS

Below is illustrated the BUHL Type C Portable Compressor—one of the many different types of this popular line. Moderate in original cost and low in upkeep.

There are six sizes of portable air compressors in the BUHL line to choose from. For operating jack hammers, riveters, clay spades, concrete breakers, etc. The BUHL gives dependable air power at low cost—send for bulletins today.

Sales offices in principal cities

THE BUHL COMPANY

Manufacturers

37 W. Van Buren St., CHICAGO



O.
K.

Pep up those air tools!
with an O.K. Air Compressor

O.K.
Portable
Hoists

O.K.
Portable
Elevators

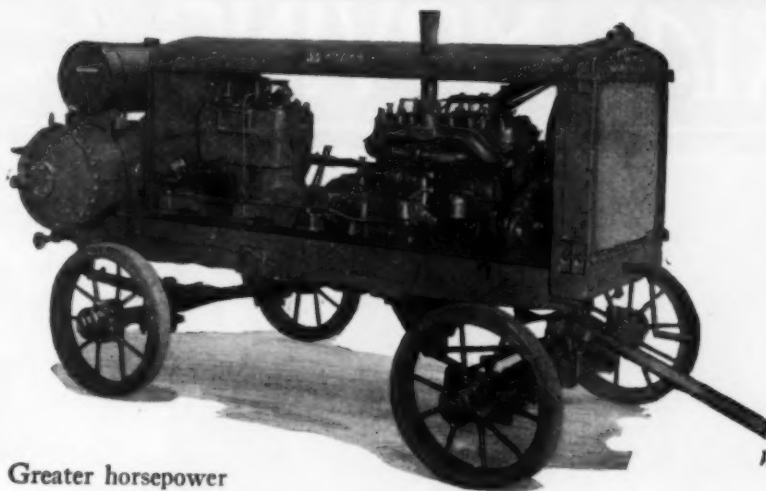
There's nothing to take the place of air on portable jobs. Get the most air for your money! O.K. Compressors have powerful, sure-fire engines, large capacity, special valves, a new type safety device to prevent racing—and other special useful advantages. Get complete information and prices.

Some valuable territory open to agents. Write

O.K. Clutch and Machinery Co.

P.O. Box 305

Columbia, Pa.



**60
120
180
240
Cu. Ft.**

Write for new 1928 Catalog for complete specifications.

Greater horsepower
Larger capacity compressor
Clutch—easy starting

Slow down governor

Economical operation—THE SCHRAMM PORTABLE AIR COMPRESSOR

Furnished on steel or rubber tired wheels,

Spring Trailer mounting, skidded, or fitted for mounting on Trucks, and Tractors.

Schramm

**Inc., Manufacturers
West Chester, Penna.**

Offices and Representatives in Principal Cities

**compare with
mixers costing
\$250 more**

**The BOSS
ONE-TWO BAGGER
MIXER**

**1 bag at 1-3-6
2 bags at 1-2-5
built of steel**

Large Size Steel Drum

Compare the size of this drum with drum of any mixer within \$250 of it in price.

The all-steel mixing drum is electrically welded and leak proof. The mixing action is the same *high speed, patented, remixing, self cleaning action* which has made the performance of BOSS MIXERS famous throughout the world. Big drum means better mixing and extra capacity when you want to push work hard. Steel drum means 800 pounds less dead load for engine to pull.

No Breakdowns

This machine offers you everything that you have desired in a mixer. Built of steel to overcome breakdowns and to save weight—steel castings and forgings where strain is great. Hyatt Roller Bearings save 17% power and 60% oil—last for life of mixer. Massive gears of semi-steel type mean

fewer replacements. Chilled car wheel rollers. V friction hoist drum operates the power loader. Alemite lubrication. Electric welding replaces belts and rivets wherever it is possible.

**25 to 30
More Batches
Daily**



**CLIP AND
MAIL THIS
COUPON
NOW**

Rapid Discharge and Remixing Action

The new BOSS Cross Discharge locks in both positions and operates at the touch of a finger. The loading skip empties without pounding into the sub-hopper. These two features have speeded up charging and discharging. The BOSS Patented Remixing Drum permits faster mixing and produces stronger, more uniform aggregate. 10 cu. ft. of concrete mixed per batch. Discharge averages 8 to 12 seconds. All features result in better work—quicker work—greater profits.

Powerful 10-12 H. P. Gasoline Engine

Only best multi-cylinder gasoline engines on the market, including LeRoi and Novo, are used on BOSS Equipment.

INVESTIGATE

Before you get any you owe it to yourself to investigate further the features of superiority of BOSS Mixers. Act Now! The coupon makes it easy for you to get complete information and prices.

**AMERICAN CEMENT MACHINE COMPANY, Inc.
240 S. Fourth St., KEOKUK, IOWA**

Please send me complete details and prices on the BOSS One-Two Bagger

Name.....

Address.....

City..... State.....

MATERIAL MOVING THE SENSIBLE AND ECONOMICAL WAY.



7 POINTS

Improved Hoisting Truck
Rigid Frame
Closely Spaced Rollers
Straight or Swivel Wheels
Gas Engine or Motor
Easily Portable



CONVEYORS

Portable or stationary in any style, length, or capacity are practical and suitable for every material handling need.

"NORTHERNS"

Move sand, gravel, stone or wet concrete with a maximum of quantity for a minimum of cost.

INEXPENSIVE TO BUY—CHEAP TO OPERATE

Northern Conveyor & Mfg. Co.

JANESVILLE WISCONSIN

This is Your Ticket For a Free Tour of Over 50 Contracting Layouts

Here's a chance to make a free inspection tour of over 50 progressive contracting jobs, without going outside of your own door. Barber-Greene men have gathered information, pictures and layouts on interesting features of contracting work in every section of the country. The best of these have been collected in the 1927 edition of *Contracting with Barber-Greene's*. Sending this ticket brings your copy—send it today.

Name
Address
City State
Company

BARBER-GREENE CO. 530 W. Park Av., Aurora, Ill.
Representatives in Fifty Cities
BARBER GREENE
Portable Belt Conveyors Self Feeding Bucket Loaders
Coal Loaders Automatic Ditch Diggers Coal Feeders

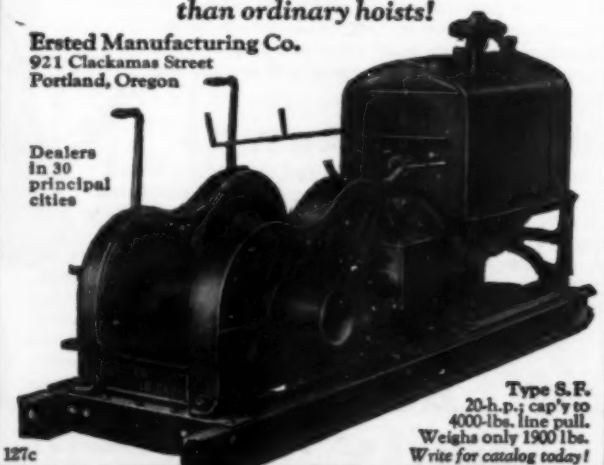
ERSTED All Steel *Automotive* HOISTS



—worth more
—cost less
than ordinary hoists!

Ersted Manufacturing Co.
921 Clackamas Street
Portland, Oregon

Dealers
in 30
principal
cities



Type S.F.
20-h.p.; cap'y to
4000-lbs. line pull.
Weights only 1900 lbs.
Write for catalog today!

127c

He bought the second BAY CITY Tractor Shovel because he liked the first



WHY dilly-dally about buying your first Tractor Shovel? Here's a contractor so well sold on his first that he has bought a second.

Making money with it, too—as all owners of Bay City Tractor Shovels are doing. Always plenty of work to be had for this speedy, versatile machine, which can handle shovel, clamshell, dragline or trencher.

The top picture shows two Tractor Shovels operating in a gravel pit owned by the Connecticut State Highway Dept. The Lovell Construction Co. is the owner of the Tractor Shovels. The performance of the first one was what made them buy the second. They are great machines for highway maintenance, excavation, trenching, etc. Plenty of power and speed. Sturdiest kind of construction. Simplest possible operation.

Write for literature.

BAY CITY DREDGE WORKS

Bay City, Mich.

Eastern Office: 302 Broadway, New York



One of two Bay City Tractor Shovels owned by the Lovell Construction Co., widening the road right-of-way and removing slides for the Connecticut State Highway Dept.



Bay City 16-B Convertible Excavator with Skimmer scoop, excavating hard macadam road surface. A 20-ton $\frac{3}{4}$ -yd. outfit that's a big money-maker.

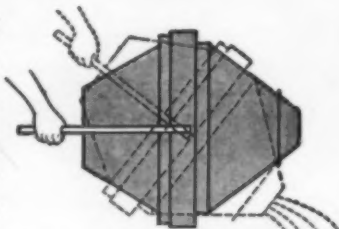
BAY - CITY

FULL OR PART CIRCLE — SHOVELS — TRENCHERS — SKIMMERS

More Batches a Day With a Smith Mascot

The Smith Double Cone Drum is discharged in 8 seconds—then tilts back through a short arc ready for the next batch

CHARGE, mix, tilt—charge, mix, tilt! That's the program, hour after hour, with a Smith Mascot. No wasted seconds that add up into hours of non-productive time. More cubic yards of concrete per day—the job done quicker—more profits for the contractor.



No waiting after discharge—one quick, short motion of the Tilt-Bar and the drum is ready for another batch. No time is lost, and more concrete is poured per hour.

Mascot (2½-S) is a fully developed machine that truly expresses Smith's 28 years of mixer building. As tough at every point as a mixer can be made—free from trouble—a profit maker for years.

And Now at New Low Price—Get the Mascot for Your 1928 Work

Increased production and improved manufacturing methods enable us to give you the Mascot, engineered like the big Smiths—at a price that will surprise you. You can have a rugged, well-built, long-life concrete mixing machine at a lower price than has ever heretofore been possible. Detailed specifications, our Catalog 528 and new price sheet should be in your hands now so you can get a Smith early. Send for them.

THE T. L. SMITH COMPANY

1084 32nd ST., MILWAUKEE, WIS.

Sales Offices and Service Stations in All Principal Cities



The Smith Mascot (2½-S), all steel frame, full trussed rear axle. Discharge operated from either side. Electric welded steel drum of 3/64" plate. Choice of steel wheels, demountable cushion tires or wheels for Ford 30 x 3½ tires. Daily capacity, 25 to 40 cu. yds.

There are other fast Smiths, of 3½, 5 and 7-S capacity, fully described in our catalog.

SMITH MIXERS



THIS new 96-page booklet is filled with information on how you can reduce your excavating and material handling costs. You'll find page after page of descriptions, pictures and drawings, showing you what other users are accomplishing with Sauerman Power Drag Scrapers. Your name and address on a post card is enough to tell us where to send the booklet. There is no obligation. Mail the card today.

SAUERMAN BROS., Inc.
480 S. Clinton St., CHICAGO

SAUERMAN



JUST OUT—A new Dingman book for builders and contractors.

Construction Job Management

By Charles F. Dingman

Director of the Tyrean Institute

220 pages, pocket size, flexible, 27 illustrations.
\$2.50 net, postpaid



A book that tells you in a sensible, practical way how successful builders manage a construction job—

How they co-ordinate the work of the men in the different trades—

A simple, practical description of the most effective means of handling the several branches of building construction and of co-ordinating the work of the men in the different trades employed.

The book tells you how successful builders prepare to start the job, how they arrange their equipment, how they get the work done, how they handle their superintendents, clerks, foremen and other employees, how they handle masonry and concrete, fireproof construction, plaster and stucco work, and carpenter work.

Chapter IX on Relations with Subcontractors is alone worth the price of the book to every builder and building contractor. It deals with such topics as:

- permission to sublet work;
- contractual relations;
- responsibility and guaranties;
- liability and compensation insurance;
- structural steel;
- painting structural steel;
- steel sash;
- special floorings;
- plumbing;
- wiring;
- gas piping;
- roofing and sheet-metal work.

FREE EXAMINATION COUPON

McGraw-Hill Book Company, Inc., 370 Seventh Ave., New York. Gentlemen: Send me for ten days' free examination: Dingman's Construction Job Management, \$2.50. I agree to return the book, postpaid, in ten days or to remit for it then.

Name
Home Address
City State
Position
Company
(Books sent on approval to retail customers in the United States and Canada only.) C.M. 4-1-28



Mixes as no other paver can!

NOT against a flat surface but from the ends to the middle, doubled over in a mass, cut through and through, carried up at the sides and returned to the middle again—that's the action of the double cone MultiFoote drum. In falling the aggregates are not scattered and broken up but are kneaded in a mass.

The curved buckets assure a uniform distribution of water—and because of the natural scouring action at the center of the drum and the freedom from corners—

The MultiFoote drum won't build up with Early Strength Cements.

The Foote Company, Inc.
of Nunda, N. Y.

World's largest exclusive builders of road pavers

Frank E. Hall
152 W. 42nd Street
New York City

Wilcox Brothers, Inc.
588 Chenango Street
Binghamton, New York

E. J. McHarg & Co.
31 Crestmont Road
Binghamton, New York

MultiFoote Sales Company
2811 W. Fulton Street
Chicago, Ill.

Burton Franklin
Volunteer Building
Chattanooga, Tenn.

Edward R. Bacon Company
Folsom at 17th Street
San Francisco, Calif.

MULTIFOOTE
The Paver with Broken Bearings



CM4-Gray



A New Pump with a Real Operating Advantage

IT WILL pay you to know more about this latest American-Marsh development—a centrifugal contractor's pump which is automatically primed.

When starting up, the new Type MEP Portable Pump is automatically primed in less than one minute—and it stays primed without any attention as long as the engine runs. The patented primer is sure fire—works every time, even in freezing weather—the only practical device of its kind ever brought out.

This American-Marsh outfit deserves a place in your economy program. It is extra sturdy though light-weight, powered by a high-grade gas engine and complete for the job including primer as standard equipment, yet withal exceptionally low priced. There is a size for every operating condition.

Mail the coupon for full information.

American Steam Pump Company
BATTLE CREEK, MICHIGAN

Kindly send me your Bulletin 59 describing the new Type MEP Portable Pump which is automatically primed.

☐ CHECK BELOW, IF INTERESTED
Without obligation have your sales representative call.

Signed

Firm Name

Address

AMERICAN-MARSH

Type MEP Portable Pump

To make your unwatering and
water supply problems easier!



THIS Morris Portable All-Purpose Pump handles anything from clear water to floating dirt, sand and gravel, delivers 300 to 600 gals. per min., can be used for heads up to 50 ft., and is easy to cart from one job to another. For general water supply, unwatering excavations, sumps, etc., it can't be beat.

Write for literature about this and other sizes
of Morris Pumps

MORRIS MACHINE WORKS, Baldwinsville, N.Y.

MORRIS

CENTRIFUGAL PUMPS

A MANUAL of actual construction methods; methods that are used every day by practical construction superintendents. From pile driving to scaffolding, this new book covers everything in satisfying detail.

Published June, 1927

Standard Construction Methods

By G. UNDERWOOD
Construction Engineer

408 pages, 6x9, 327 illustrations, flexible
\$5.00 net, postpaid

Everything in this book is practical, workable, and has been demonstrated over and over again in the field. It is a book no construction man will want to be without. The book contains a real chapter on rigging and erection work. Tables of safe capacities for tackle—a new simple formula for strength of manila and wire rope—figuring the strength of hooks and shackles—how to rig a gin pole and shears, etc., etc., etc.

Just a few of the scores of practical topics covered

- (page 51) installing steel sheet piling;
- (page 54) timber bracing for steel sheet piling;
- (page 83) concrete forms and runways;
- (page 128) cornices;
- (page 172) fire brick;
- (page 193) threading holes for tap bolts;
- (page 204) laying tar roofing;
- etc., etc., etc.

See a copy
FREE. Mail
this coupon
NOW!

How
crack
construction
men get
things
DONE



McGRAW-
HILL BOOK
COMPANY, Inc.
370 Seventh Ave.
New York City

You may send me for 10 days' free examination Underwood's Standard Construction Methods, \$5.00 net, postpaid. I agree to remit for the book or to return it, postpaid, within 10 days of receipt.

Name

Address

Position

Company

C.M. 4-1-28

*Mr. Contractor!
How much
water do you
get for a dollar?*

Water supply when figured upon a dollar and cents basis is an item which may put enormous figures in the cost column if pumping equipment isn't dependable. An unreliable pump may turn profit into loss. A dependable Barnes pump gives more water per dollar because it operates continuously day after day without interruption, giving a steady flow of water for all operations.

These features, all of which are embodied only in Barnes construction, are your assurance of more water per dollar.

1. Most simple, self-oiling system—one moving part rotary pump.
2. All steel gears.
3. Forged crank shaft—not cast.
4. Three pointed suspension truck, spring mounted.
5. Roller bearings on all shafts, including crank shaft.
6. Water cylinders detachable from power end.
7. Rubber tired roller bearing wheels, interchangeable with standard steel wheels.

THE BARNES MANUFACTURING CO.
923 Main St., Mansfield, Ohio



**BARNES
PUMPS**

**“60,000
gallons
today—”**



**Weight — — — — 95 lbs.
Capacity—7,500 gal. per. hr.
Price — \$225 f.o.b. factory**

Maximum head—50 ft.

Maximum lift —20 ft.

Bronze impeller. Air cooled engine.
Runs 4 to 5 hrs. per gallon of gasoline.
Rugged and reliable in rough service.

*Ask how you can have
a demonstration*

THE HOMELITE CORPORATION, Port Chester, N.Y.

Homelite

Portable Centrifugal Pump
24,000 gal. per hr.





Where there's mud or wet— a Starrett Stainless Steel Tape

This tape is designed especially for work in damp, muddy places where rust and corrosion make short work of the average tape.

Made of genuine Stainless Steel, this Starrett tape will remain bright and clearly legible after years of service. Simply wipe it off to remove the grit, wind it up and forget it until next needed.

Ask your dealer to show you the Starrett No. 521 Stainless Steel Tape graduated in feet, tenths and hundredths of a foot—in 50 and 100 ft. lengths. The No. 520, same lengths, is graduated in feet, inches and eighths of an inch.

Write for full information on the complete line of Starrett Tapes and a copy of the new Starrett Catalog No. 24 "NF".

THE L. S. STARRETT CO.
World's Greatest Toolmakers
Manufacturers of Hacksaws Unexcelled
Steel Tapes—Standard for Accuracy
ATHOL, MASS., U. S. A.

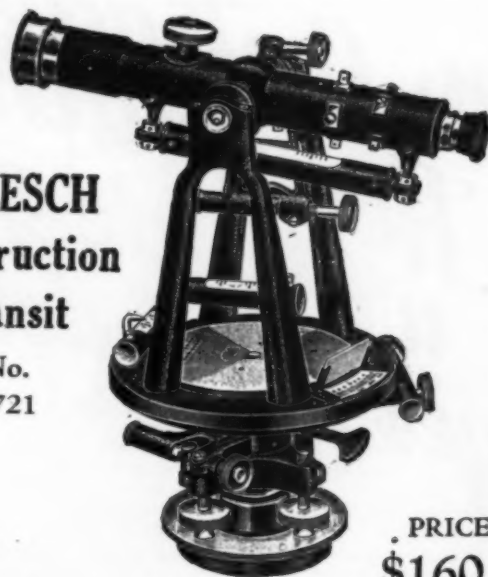
Use Starrett Tools

1622

The BEST at any Price!

KOLESCH Construction Transit

No.
7721



PRICE
\$160

This Transit is designed to meet the most exacting requirements of the Construction Engineer, and is *Kolesch Quality* throughout.



KOLESCH & COMPANY
138 Fulton St., New York, N. Y.
Established 1885



Make more by serving more

Do your leveling and plumbing the modern, accurate way. Mistakes are always costly. By actual experience you can save an average of \$2.00 a day or more on every job as a result of the speed and accuracy possible with this specially designed Beckmann level and transit.

A Genuine Beckmann More Cannot Be Said

Beckmann instruments are known the world over. They are noted for precision and accuracy—for their sturdy construction and long life.

This model is designed for the use of builders and contractors. It cuts time and mistakes in leveling buildings, floors, walls

and foundations—in running lines for fences, streets and ditches—in surveying lots and locations.

Easy to learn to use. Big volume makes the price very low.

Write for our booklet "Low Priced Precision"

The L. Beckmann Co.,
448 Jackson St.,
Toledo, Ohio

Please send me your book, "Low Priced Precision."

Name.....

Address.....

City.....



INDEX TO ADVERTISERS

Amer. Cement Machine Co..... 87	Chicago Pneumatic Tool Co... 70	Independent Pneumatic Tool Co. 40	O. K. Clutch & Mehry Co..... 86
Amer. Steam Pump Co..... 92	Cleveland Rock Drill Co..... 62	Ingersoll-Rand Co..... 2nd Cover	Owen Bucket Co..... 77
Anti-Hydro Waterproofing Co... 84	Cleveland Tractor Co..... 83	Inaley Mfg. Co..... 54	Plymouth Locomotive Works... 58
Armco Culvert Mfgs. Assn. 59	Clyde Iron Works Sales Co.... 75	Jaeger Machine Co..... 57	Quizley Furnace Specialties Co., Inc. 79
Atlas Portland Cement Co..... 73	Construction Machinery Co.... 74	Koehring Company 68	Rogers Brothers Corp..... 80
Atlas Western Road Mehry Co. Insert, 55-56	Continental Motors Corp. 3rd Cover	Kolesch & Company..... 94	Sabin Company 95
Baker Mfg. Co..... 78	Curtis Pneumatic Mehry. Co... 85	Lakewood Engineering Co.... 65	Saunders Bros. 90
Barber-Greene Co..... 88	Dayton-Whirley Co. 45	Lambert Hoisting Engine Co... 47	Schramm, Inc. 87
Barnes Mfg. Co..... 93	Dietz Co., R. E..... 63	Lehigh Portland Cement Co.... 49	Smith Co., T. L. 90
Bates Mfg. Co..... 78	Eisemann Magneto Corp..... 84	LeRoi Company 42	Starrett Co., L. S. 94
Bates Valves Bag Co..... 71	Ersted Mfg. Co..... 88	Leschen & Sons Co., A. 43	Sterling Wheelbarrow Co..... 72
Beckmann Co., L..... 94	Fate-Root Heath Co. 58	Lowell Wrench Co..... 63	Sullivan Machinery Co..... 69
Blaw-Knox Co..... 60	Foot Company 91	McGraw-Hill Book Co..... 90-92	Thew Shovel Co.... Insert, 37-38
Brooks Co., R. E..... 80	Foundation Co..... 44	Mack Trucks, Inc..... 4th Cover	Union Carbide & Carbon Corp. 64
Browning Crane Co..... 51	General Wheelbarrow Co.... 61	Marsh-Capron Co. 62	Universal Crane Co..... 53
Bucyrus-Erie Company 39	Good Roads Machinery Co.... 48	Metal Forms Corp..... 82	Universal Portland Cement Co.. 2
Buffalo-Springfield Roller Co. 82	Hayward Co..... 76	Milwaukee Locomotive Mfg. Co. 92	Walker Cement Products..... 50
Buhl Company 86	Hercules Motors Corp..... 46	Morris Machine Works..... 92	Watson-Stillman Co..... 95
Butler Bin Co..... 81	Homelite Corporation 93	National Brake & Elec. Co.... 66	Witchell-Sheill Co..... 86
Byers Machine Co..... 20-21	Huber Mfg. Co..... 84	Northern Conveyor & Mfg. Co. 88	
Carey Co., Philip..... 96	Hughes-Keenan Co..... 67	Northwest Engineering Co.... 41	
Carter, Ralph B..... 95		Novo Engine Co..... 82	
Caterpillar Tractor Co..... 62			



Prevent Concrete Failures by Making Tests of Your Concrete and Concrete Aggregates

Frequent compression tests are not only now required on all large contracts, but are absolutely essential from a standpoint of safety.

The illustration shows one of our 100-ton hydraulic presses arranged especially to test concrete test cubes, cement, stone, etc.

When it is desired to check and calibrate the gauge load readings, a variable pressure accumulator (of known increments) is furnished.

Write for Bulletin B-18X

THE WATSON-STILLMAN CO.

1014 Evening Post Bldg., New York City

Chicago, 549 W. Washington Blvd.
Cleveland, Auditorium Garage Bldg.

Philadelphia, Widener Bldg.
Detroit, 7752 Dubois St.



HUMDINGER PUMPS

Non-clogging, everlasting rubber ball valves, totally enclosed, running-in-oil jacks, bronze bushed bearings, all steel trucks, and enclosed engine crank cases make HUMDINGER PUMPS.

THE CONTRACTOR'S CHOICE

Full detail description given in Bulletin No. 1034 CM. Send for a copy.

RALPH B. CARTER CO., 126 Chambers St., New York

Factory: Hackensack, N. J.

Makes Glove Wearing A Comfort



Hard, outdoor work calls for gloves, but discomfort of ordinary gloves keep many from wearing them.

Sabin Gloves, on the other hand, are so comfortable and convenient, you'll like to wear them.

Take our No. 206, for example. It has a strong leather palm, horseshoe thumb, holdtight back to prevent dropping off.

Send for information,
or \$1.50 for a pair
of these gloves.

Sabin Co.,—Gloves

536-40 W. Federal St., Youngstown, O.

Sabin Co.,—Gloves
536-40 W. Federal St.,
Youngstown, Ohio

Send me information on Sabin Gloves

Name

Address

If you wish a pair of No. 206 Gloves Enclose \$1.50 and check here ☐



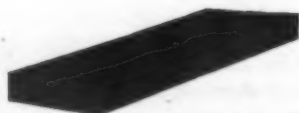
Florida's sun can't make it run
...and at zero it wouldn't be brittle!



THE above photograph, taken at White City, Florida, shows the remarkable flexibility of Carey Elastite Expansion Joint. It bends and flexes, limber as leather harness. Easy to handle, and it keeps its shape in any weather.

Broiling sun can't melt it; frost can't make it brittle. How it does stand up in service!

Carey Elastite Expansion Joint is used in practically every state in the Union. For in this season-proof material leading construction engineers recognize the unfailing means of protecting concrete against disintegration. Our free booklet will give you the facts—write for your copy today.



Carey Elastite Expansion Joint consists of a heavy body of fibrous asphaltic compound, sandwiched between two layers of asphalt-saturated felt. Made in preformed strips, in various lengths, widths and thicknesses. Common labor can install it easily, with ordinary tools.

**Carey
Elastite**

EXPANSION JOINT

THE PHILIP CAREY COMPANY
Lockland, Cincinnati, Ohio

Dependable Power



for Every Purpose

Dayton-Dowd pump-
ing unit powered with
Model H-9 heavy duty
Red Seal engine.



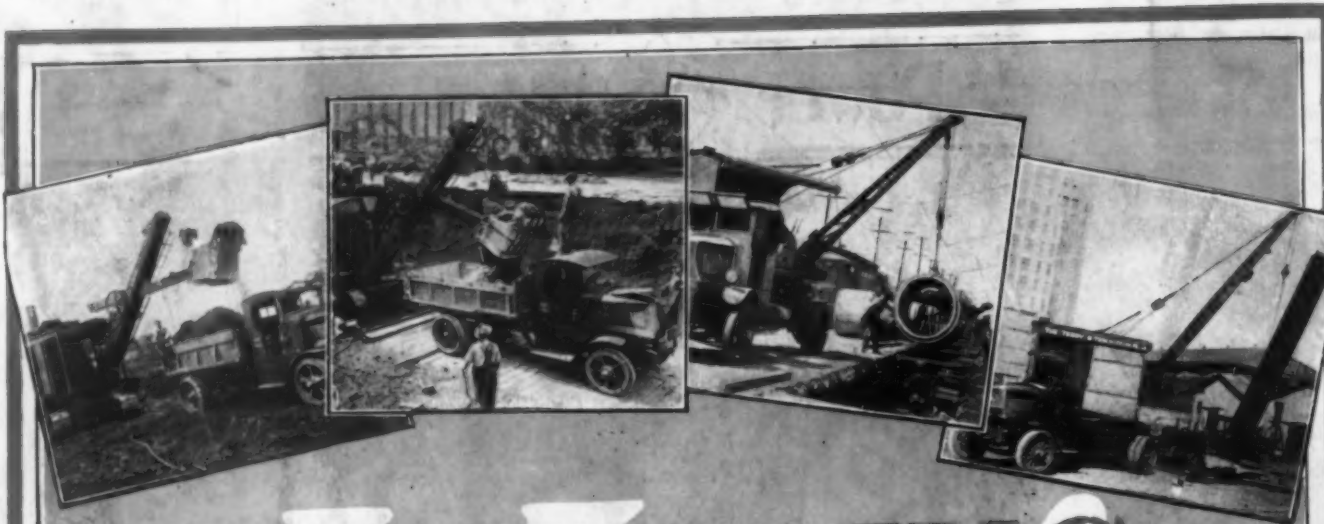
Red Seal Motors Best Meet the Tests of Industry's Power Demands

WHERE the work to be done is hard and continuous—where the installations are in difficult inaccessible places, there the rugged, dependable power and the efficient operating economy of Red Seal Continental motors show up to the best advantage.

It takes a real task to test the power of a giant. Built for constant service without requiring daily attention the complete power series of heavy duty Red Seal engines developed specially for industrial application continue to rank as the best investment in power, economy and common sense.

CONTINENTAL MOTORS CORPORATION
INDUSTRIAL EQUIPMENT DIVISION
Office and Factory: Muskegon, Michigan
The Largest Exclusive Motor Manufacturer in the World

Continental Motors



UNYIELDING POWERFUL DEPENDABLE

UNYIELDING—powerful—dependable—are the qualities bound up in the heart of a bulldog.

It must have been that those men who handled the first Macks strongly sensed the bulldog char-

acteristics or they would not have voluntarily christened Macks the "Bulldogs" of the highway.

It was not until the name became generally popular that it was officially adopted by the Mack Company.

MACK TRUCKS, INC.
INTERNATIONAL MOTOR COMPANY
25 Broadway New York City

One hundred and four direct MACK factory branches operate under the titles of: "MACK-INTERNATIONAL MOTOR TRUCK CORPORATION", "MACK MOTOR TRUCK COMPANY", or "MACK TRUCKS OF CANADA, LTD."



YOU NEVER SAW A BULLDOG QUIT